

SEQUENCE LISTING

<110> Ballinger, Dennis
 Loeb, Debra
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<120> MATERIALS AND METHODS RELATING TO LIPID METABOLISM

<130> 28110/35915A

<150> US 60/197,137

<151> 2000-04-14

<150> US 09/714,936

<151> 2000-11-17

<150> US 09/667,298

<151> 2000-09-22

<150> US 09/631,451

<151> 2000-08-03

<150> US 09/598,042

<151> 2000-06-20

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<170> PatentIn version 3.0

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Phe Thr His Ser Lys Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe
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Val Gln His Asn Thr Arg Gln Leu Ser Arg Val Tyr Pro Ser Gly Leu
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His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser
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Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser
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Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn Ser Val Glu Glu Ala
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Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp Leu Val Thr Ser
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Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu Ser Asp Trp Phe Gln
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Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser Phe Gln Glu Val Gln
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Arg Leu Leu His Leu Met Asn Val Glu Met Asp Gln Glu Tyr Ala Phe
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Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser Gly Thr Leu Glu Gly
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Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly Gln Lys Leu Thr Leu
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Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln Lys Glu Arg Asp Cys
225 230 235 240

Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg Tyr Glu Pro Ser Asp
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Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro Ala Cys Leu Pro Ile
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Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr Phe Ile Cys Ser Ser
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His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys Gly Gln Ser Ser Val
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Glu Gly Tyr Ile Arg Ala Leu Lys Arg Gly Cys Arg Cys Val Glu Val
325 330 335

Asp Val Trp Asp Gly Pro Ser Gly Glu Pro Val Val Tyr His Gly His
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Thr Leu Thr Ser Arg Ile Leu Phe Lys Asp Val Val Ala Thr Val Ala
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Gln Tyr Ala Phe Gln Thr Ser Asp Tyr Pro Val Ile Leu Ser Leu Glu
370 375 380

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Glu Ile Leu Gly Glu Gln Leu Leu Ser Thr Thr Leu Asp Gly Val Leu
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Pro Thr Gln Leu Pro Ser Pro Glu Glu Leu Arg Arg Lys Ile Leu Val
420 425 430

Lys Gly Lys Lys Leu Thr Leu Glu Glu Asp Leu Glu Tyr Glu Glu Glu
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Glu Ala Glu Pro Glu Leu Glu Glu Ser Glu Leu Ala Leu Glu Ser Gln
450 455 460

Phe Glu Thr Glu Pro Glu Pro Gln Glu Gln Asn Leu Gln Asn Lys Asp
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Lys Lys Lys Lys Ser Lys Pro Ile Leu Cys Pro Ala Leu Ser Ser Leu
485 490 495

Val Ile Tyr Leu Lys Ser Val Ser Phe Arg Ser Phe Thr His Ser Lys
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Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe Ser Glu Thr Lys Ala
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Lys Arg Leu Ile Lys Glu Ala Gly Asn Glu Phe Val Gln His Asn Thr
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Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn Thr Gly Gln
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Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr Ser Gln Glu
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His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys Ala Gly Gly

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Gln Trp Ile Asp Ile Thr Asp Val Lys Pro Gly Asn Tyr Ile Leu Gln	
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His

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Phe Pro Arg Lys Pro Tyr Glu Gly Arg Val Glu Ile Gln Arg Ala Gly
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Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala Ala His
65 70 75 80

Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala Thr Gly Trp Thr His
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Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile Trp Leu Asp Asn Leu
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Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu Cys Ala Ser Arg Gly
115 120 125

Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys
130 135 140

Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser Asn Val Ile Glu Val
145 150 155 160

Glu His His Leu Gln Val Glu Glu Val Arg Ile Arg Pro Ala Val Gly
165 170 175

Trp Gly Arg Arg Pro Leu Pro Val Thr Glu Gly Leu Val Glu Val Arg
180 185 190

Leu Pro Asp Gly Trp Ser Gln Val Cys Asp Lys Gly Trp Ser Ala His
195 200 205

Asn Ser His Val Val Cys Gly Met Leu Gly Phe Pro Ser Glu Lys Arg
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Val Asn Ala Ala Phe Tyr Arg Leu Leu Ala Gln Arg Gln Gln His Ser
225 230 235 240

Phe Gly Leu His Gly Val Ala Cys Val Gly Thr Glu Ala His Leu Ser
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Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp Thr Ala Arg Cys Pro
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Ala Ser Ser Gly Gln Lys Lys Gln Gln Gln Ser Lys Pro Gln Gly Glu
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Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val Cys Tyr Arg Lys Trp
325 330 335

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355 360 365

Ile His Leu Ser Glu Val Arg Cys Ser Gly Gln Glu Leu Ser Leu Trp
370 375 380

Lys Cys Pro His Lys Asn Ile Thr Ala Glu Asp Cys Ser His Ser Gln
385 390 395 400

Asp Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr Gly Ala Glu Thr Arg
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Val Ile His Ser Val Ser Leu Gln Ile Arg Leu Ser Gly Gly Arg Ser
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Gln His Glu Gly Arg Val Glu Val Gln Ile Gly Gly Pro Gly Pro Leu
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Val Ala Cys Arg Gln Leu Gly Leu Gly Tyr Ala Asn His Gly Leu Gln
465 470 475 480

Glu Thr Trp Tyr Trp Asp Ser Gly Asn Ile Thr Glu Val Val Met Ser
485 490 495

Gly Val Arg Cys Thr Gly Thr Glu Leu Ser Leu Asp Gln Cys Ala His
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His Gly Thr His Ile Thr Cys Lys Arg Thr Gly Thr Arg Phe Thr Ala
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Gly Val Ile Cys Ser Glu Ala Ser Asp Leu Leu Leu His Ser Ala Leu
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Asn Leu Gly Arg Ala Asp Phe Arg Pro Lys Ala Gly Arg His Ser Trp
595 600 605

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His Tyr Asp Ile Leu Thr Pro Xaa Gly Thr Lys Val Ala Glu Gly His
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Lys Ala Ser Phe Cys Leu Glu Asp Thr Glu Cys Gln Glu Asp Val Ser
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Lys Arg Tyr Glu Cys Ala Asn Phe Gly Glu Gln Gly Ile Thr Val Xaa
660 665 670

Cys Trp Asp Leu Tyr Arg His Asp Ile Asp Cys Gln Trp Ile Asp Ile
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Thr Asp Val Lys Pro Gly Asn Tyr Ile Leu Gln Val Val Ile Asn Pro
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Protein Data Bank

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Thr	Gly	Ser	Gln	Thr	Cys	Arg	Asn	Thr	His	Gly	Ser	Tyr	Thr	Cys	Ser	
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tgt	gtg	gaa	ggc	tac	cta	atg	cag	cca	gac	agc	aga	tct	tgc	aag	gct	844
Cys	Val	Glu	Gly	Tyr	Leu	Met	Gln	Pro	Asp	Ser	Arg	Ser	Cys	Lys	Ala	
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Lys	Ile	Glu	Pro	Thr	Asp	Arg	Pro	Arg	Ile	Leu	Leu	Ile	Ala	Asn	Phe	
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Glu	Asp	Val	Ile	Cys	Trp	Ile	Glu	Ser	Arg	Glu	Ser	Ser	Asn	Gln	Leu	
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Lys	Cys	Ile	Gln	Ile	Thr	Lys	Ala	Gly	Gly	Leu	Thr	Asp	Glu	Trp	Thr	
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Ile	Asn	Ile	Leu	Gln	Ser	Phe	His	Asn	Val	Gln	Gln	Met	Ala	Ile	Asp	
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Trp	Leu	Thr	Arg	Asn	Leu	Tyr	Phe	Val	Asp	His	Val	Gly	Asp	Arg	Ile	
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Arg His Thr Val Ile Gln Gly Arg Gln Val Arg His Leu Tyr Gly Ile	
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Thr Val Phe Glu Asp Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Tyr Asn	
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Ile Val Arg Ile Asn Arg Phe Asn Gly Thr Asp Ile His Ser Leu Ile	
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Lys Ile Glu Asn Ala Trp Gly Ile Arg Ile Tyr Gln Lys Arg Thr Gln	
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Cys Lys Arg Pro Lys Asn Glu Leu Phe Leu Phe Tyr Gly Lys Gly Arg	
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Ile Gly Arg Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr Ile Leu Lys	
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His Thr Leu Asp Phe Ile Tyr Asn Glu Asp Val Ile Cys Trp Ile Glu
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Ser Arg Glu Ser Ser Asn Gln Leu Lys Cys Ile Gln Ile Thr Lys Ala
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Gly Gly Leu Thr Asp Glu Trp Thr Ile Asn Ile Leu Gln Ser Phe His
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Asn Val Gln Gln Met Ala Ile Asp Trp Leu Thr Arg Asn Leu Tyr Phe
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Val Asp His Val Gly Asp Arg Ile Phe Val Cys Asn Ser Asn Gly Ser
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Val Cys Val Thr Leu Ile Asp Leu Glu Leu His Asn Pro Lys Ala Ile
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Ala Val Asp Pro Ile Ala Gly Lys Leu Phe Phe Thr Asp Tyr Gly Asn
370 375 380

Val Ala Lys Val Glu Arg Cys Asp Met Asp Gly Met Asn Arg Thr Arg
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Ile Ile Asp Ser Lys Thr Glu Gln Pro Ala Ala Leu Ala Leu Asp Leu
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Val Asn Lys Leu Val Tyr Trp Val Asp Leu Tyr Leu Asp Tyr Val Gly
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Val Val Asp Tyr Gln Gly Lys Asn Arg His Thr Val Ile Gln Gly Arg
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Gln Val Arg His Leu Tyr Gly Ile Thr Val Phe Glu Asp Tyr Leu Tyr
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Ala Thr Asn Ser Asp Asn Tyr Asn Ile Val Arg Ile Asn Arg Phe Asn
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Gly Thr Asp Ile His Ser Leu Ile Lys Ile Glu Asn Ala Trp Gly Ile
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LEUCINE

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Gln Leu Ile Thr Ser Val Gly Val Gln Asn His Pro Gly Trp Thr  
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Gln Trp Ala Gln Glu Leu Glu Glu Asn Leu Asn Glu Leu Thr His Ile
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Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg
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Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu
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Lys Asn Leu Thr Pro Tyr Val Ala Ile Glu Asp Lys Asp Met Gln Gln
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Arg Trp Lys Ile Gln Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn
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Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser
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Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu Arg Asp Ile Thr Pro
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Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile
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Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg
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Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu
260 265 270

Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn
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gcc aag ccc agc ttc tca atc tct gat gtg gag aca ata cgt aat ggc Ala Lys Pro Ser Phe Ser Ile Ser Asp Val Glu Thr Ile Arg Asn Gly 60 65 70	366
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caa tgg ctg agc gat tgg ttt caa cgt gga gac aaa aat cag gat ggt Gln Trp Leu Ser Asp Trp Phe Gln Arg Gly Asp Lys Asn Gln Asp Gly 140 145 150	606
aag atg agt ttc caa gaa gtt cag cgg tta ttg cac cta atg aat gtg Lys Met Ser Phe Gln Glu Val Gln Arg Leu Leu His Leu Met Asn Val 155 160 165	654
gaa atg gac caa gaa tat gcc ttc agt ctt ttt cag gca gca gac acg Glu Met Asp Gln Glu Tyr Ala Phe Ser Leu Phe Gln Ala Ala Asp Thr 170 175 180	702
tcc cag tct gga acc ctg gaa gga gaa gaa ttc gta cag ttc tat aag Ser Gln Ser Gly Thr Leu Glu Gly Glu Glu Phe Val Gln Phe Tyr Lys 185 190 195 200	750
gca ttg act aaa cgt gct gag gtg cag gaa ctg ttt gaa agt ttt tca Ala Leu Thr Lys Arg Ala Glu Val Gln Glu Leu Phe Glu Ser Phe Ser 205 210 215	798
gct gat ggg cag aag ctg act ctg ctg gaa ttt ttg gat ttc ctc caa Ala Asp Gly Gln Lys Leu Thr Leu Leu Glu Phe Leu Asp Phe Leu Gln 220 225 230	846
gag gag cag aag gag aga gac tgc acc tct gag ctt gct ctg gaa ctc	894

Glu Glu Gln Lys Glu Arg Asp Cys Thr Ser Glu Leu Ala Leu Glu Leu
235 240 245

att gac cgc tat gaa cct tca gac agt ggc aaa ctg cgg cat gtg ctg 942
Ile Asp Arg Tyr Glu Pro Ser Asp Ser Gly Lys Leu Arg His Val Leu
250 255 260

agt atg gat ggc ttc ctc agc tac ctc tgc tct aag gat gga gac atc 990
Ser Met Asp Gly Phe Leu Ser Tyr Leu Cys Ser Lys Asp Gly Asp Ile
265 270 275 280

ttc aac cca gcc tgc ctc ccc atc tat cag gat atg act caa ccc ctg 1038
Phe Asn Pro Ala Cys Leu Pro Ile Tyr Gln Asp Met Thr Gln Pro Leu
285 290 295

aac cac tac ttc atc tgc tct tct cat aac acc tac cta gtg ggg gac 1086
Asn His Tyr Phe Ile Cys Ser Ser His Asn Thr Tyr Leu Val Gly Asp
300 305 310

cag ctt tgc ggc cag agc agc gtc gag gga tat ata cgg tgc agt ggt 1134
Gln Leu Cys Gly Gln Ser Ser Val Glu Gly Tyr Ile Arg Cys Ser Gly
315 320 325

ggt aga gaa ggg gtc caa ctc atg aga ggg acc atg tagaaaagtg 1180
Gly Arg Glu Gly Val Gln Leu Met Arg Gly Thr Met
330 335 340

aggggagctg tcagtgtcta acagattggg acagtgttgt ggggggttag gggctgagga 1240

gccctggata ccagagacac ttggaggaga tattgaagac tgggtgggaga atggtaatga 1300

aaccctatgg gtcaatggaa cttctcttttc acaagctatg aaactctcct ggaactcaga 1360

ggccctgaca gatttatatt taacaaatta ataaacagat tgttaaatgg aaggcaatag 1420

agaataggag ttaaaaaatat aggttctgga gtcagaccat ctgaaattat attctagctc 1480

ctttacttgg 1490

<210> 19
<211> 340
<212> PRT
<213> Homo sapiens

<400> 19

Met Ala Ser Leu Leu Gln Asp Gln Leu Thr Thr Asp Gln Asp Leu Leu
1 5 10 15

Leu Met Gln Glu Gly Met Pro Met Arg Lys Val Arg Ser Lys Ser Trp
20 25 30

Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp Gly Met Thr Val Trp
35 40 45

His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser
50 55 60

CCDS=CCDS

Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser
65 70 75 80

Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe Thr Ile Val Phe His
85 90 95

Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn Ser Val Glu Glu Ala
100 105 110

Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp Leu Val Thr Ser
115 120 125

Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu Ser Asp Trp Phe Gln
130 135 140

Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser Phe Gln Glu Val Gln
145 150 155 160

Arg Leu Leu His Leu Met Asn Val Glu Met Asp Gln Glu Tyr Ala Phe
165 170 175

Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser Gly Thr Leu Glu Gly
180 185 190

Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr Lys Arg Ala Glu Val
195 200 205

Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly Gln Lys Leu Thr Leu
210 215 220

Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln Lys Glu Arg Asp Cys
225 230 235 240

Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg Tyr Glu Pro Ser Asp
245 250 255

Ser Gly Lys Leu Arg His Val Leu Ser Met Asp Gly Phe Leu Ser Tyr
260 265 270

Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro Ala Cys Leu Pro Ile
275 280 285

Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr Phe Ile Cys Ser Ser
290 295 300

His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys Gly Gln Ser Ser Val
305 310 315 320

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Glu Gly Tyr Ile Arg Cys Ser Gly Gly Arg Glu Gly Val Gln Leu Met
 325 330 335

Arg Gly Thr Met
 340

<210> 20
 <211> 2035
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (189)..(1415)

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 gtgaagaggtt tttaaaccca caaattcttc ttactttaga attagttgtt acattggcag 120
 gaaaaataaa atgcagatgt tggaccatgt tggaaacctt gtcaagacag tggattgtct 180
 cacacaga atg gaa atg tgg ctt ctg att ctg gtg gcg tat atg ttc cag 230
 Met Glu Met Trp Leu Leu Ile Leu Val Ala Tyr Met Phe Gln
 1 5 10
 aga aat gtg aat tca gta cat atg cca act aaa gct gtg gac cca gaa 278
 Arg Asn Val Asn Ser Val His Met Pro Thr Lys Ala Val Asp Pro Glu
 15 20 25 30
 gca ttc atg aat att agt gaa atc atc caa cat caa ggc tat ccc tgt 326
 Ala Phe Met Asn Ile Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys
 35 40 45
 gag gaa tat gaa gtc gca act gaa gat ggg tat atc ctt tct gtt aac 374
 Glu Glu Tyr Glu Val Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn
 50 55 60
 agg att cct cga ggc cta gtg caa cct aag aag aca ggt tcc agg cct 422
 Arg Ile Pro Arg Gly Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro
 65 70 75
 gtg gtg tta ctg cag cat ggc cta gtt gga ggt gct agc aac tgg att 470
 Val Val Leu Leu Gln His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile
 80 85 90
 tcc aac ctg ccc aac aat agc ctg ggc ttc att ctg gca gat gct ggt 518
 Ser Asn Leu Pro Asn Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly
 95 100 105 110
 ttt gac gtg tgg atg ggg aac agc agg gga aac gcc tgg tct cga aaa 566
 Phe Asp Val Trp Met Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys
 115 120 125
 cac aag aca ctc tcc ata gac caa gat gag ttc tgg gct ttc agt tat 614
 His Lys Thr Leu Ser Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr
 130 135 140
 gat gag atg gct agg ttt gac ctt cct gca gtg ata aac ttt att ttg 662
 Asp Glu Met Ala Arg Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu
 145 150 155

cag aaa acg ggc cag gaa aag atc tat tat gtc ggc tat tca cag ggc Gln Lys Thr Gly Gln Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly 160 165 170	710
acc acc atg ggc ttt att gca ttt tcc acc atg cca gag ctg gct cag Thr Thr Met Gly Phe Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln 175 180 185 190	758
aaa atc aaa atg tat ttt gct tta gca ccc ata gcc act gtt aag cat Lys Ile Lys Met Tyr Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His 195 200 205	806
gca aaa agc ccc ggg acc aaa ttt ttg ttg ctg cca gat atg atg atc Ala Lys Ser Pro Gly Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile 210 215 220	854
aag gga ttg ttt ggc aaa aaa gaa ttt ctg tat cag acc aga ttt ctc Lys Gly Leu Phe Gly Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu 225 230 235	902
aga caa ctt gtt att tac ctt tgt ggc cag gtg att ctt gat cag att Arg Gln Leu Val Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile 240 245 250	950
tgt agt aat atc atg tta ctt ctg ggt gga ttc aac acc aac aat atg Cys Ser Asn Ile Met Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met 255 260 265 270	998
aac atg agc cga gca agt gta tat gct gcc cac act ctt gct gga aca Asn Met Ser Arg Ala Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr 275 280 285	1046
tct gtg caa aat att cta cac tgg agc cag gca gtg aat tct ggt gaa Ser Val Gln Asn Ile Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu 290 295 300	1094
ctc cgg gca ttt gac tgg ggg agt gag acc aaa aat ctg gaa aaa tgc Leu Arg Ala Phe Asp Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys 305 310 315	1142
aat cag cca act cct gta agg tac aga gtc aga gat atg acg gtc cct Asn Gln Pro Thr Pro Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro 320 325 330	1190
aca gca atg tgg aca gga ggt cag gac tgg ctt tca aat cca gaa gac Thr Ala Met Trp Thr Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp 335 340 345 350	1238
gtg aaa atg ctg ctc tct gag gtg acc aac ctc atc tac cat aag aat Val Lys Met Leu Leu Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn 355 360 365	1286
att cct gaa tgg gct cat gtg gat ttc atc tgg ggt ttg gat gct cct Ile Pro Glu Trp Ala His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro 370 375 380	1334
cac cgt atg tac aat gaa atc atc cat ctg atg cag cag gag gag acc His Arg Met Tyr Asn Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr 385 390 395	1382
aac ctt tcc cag gga cgg tgt gag gcc gta ttg tgaagcatct gacactgacg Asn Leu Ser Gln Gly Arg Cys Glu Ala Val Leu 400 405	1435

atcttaggac aacctcctga gggatggggc taggacccat gaaggcagaa ttatggagag 1495
cagagaccta gtatacattt ttcagattcc ctgcacttgg cactaaatcc gacacttaca 1555
tttacatttt ttttctgtaa attaaagtac ttattaggta aatagagggt ttgtatgcta 1615
ttatatattc taccatcttg aagggtaggt tttacctgat agccagaaaa tatctagaca 1675
ttctctatat cattcaggta aatctcttta aaacacctat tgttttttct ataagccata 1735
tttttgagc actaaagtaa aatggcaa atgggacagat attgagggtc ggagtctgtg 1795
gattattggt gactttgaca aaataagcta gacattttca ccttggtgcc acagagacat 1855
aacactacct caggaagctg agctgcttta aggacaacaa caacaaaatc agtggttacag 1915
tatggatgaa atctatgta agcattctca gaataaggcc aagttttata gttgcatctc 1975
aggggaagaaa attttatagg atgtttatga gttctccaat aaatgcattc tgcattacat 2035

<210> 21
<211> 409
<212> PRT
<213> Homo sapiens

<400> 21

Met Glu Met Trp Leu Leu Ile Leu Val Ala Tyr Met Phe Gln Arg Asn
1 5 10 15

Val Asn Ser Val His Met Pro Thr Lys Ala Val Asp Pro Glu Ala Phe
20 25 30

Met Asn Ile Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys Glu Glu
35 40 45

Tyr Glu Val Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn Arg Ile
50 55 60

Pro Arg Gly Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro Val Val
65 70 75 80

Leu Leu Gln His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile Ser Asn
85 90 95

Leu Pro Asn Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp
100 105 110

Val Trp Met Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys His Lys
115 120 125

Thr Leu Ser Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu
130 135 140

Met Ala Arg Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu Gln Lys
145 150 155 160

Thr Gly Gln Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly Thr Thr
165 170 175

Met Gly Phe Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln Lys Ile
180 185 190

Lys Met Tyr Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His Ala Lys
195 200 205

Ser Pro Gly Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile Lys Gly
210 215 220

Leu Phe Gly Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu Arg Gln
225 230 235 240

Leu Val Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile Cys Ser
245 250 255

Asn Ile Met Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met Asn Met
260 265 270

Ser Arg Ala Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr Ser Val
275 280 285

Gln Asn Ile Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu Leu Arg
290 295 300

Ala Phe Asp Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys Asn Gln
305 310 315 320

Pro Thr Pro Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro Thr Ala
325 330 335

Met Trp Thr Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp Val Lys
340 345 350

Met Leu Leu Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn Ile Pro
355 360 365

Glu Trp Ala His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro His Arg
370 375 380

Met Tyr Asn Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr Asn Leu
385 390 395 400

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Ser Gln Gly Arg Cys Glu Ala Val Leu
405

<210> 22
<211> 2224
<212> DNA
<213> Homo sapiens

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<221> misc_feature
<223> n = a or c or g or t

<220>
<221> CDS
<222> (82)..(921)
<223> Xaa = Unknown or other

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ctcaccgctg taggaatcca g atg cag gcc aag tac agc agc acg agg gac 111
Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp
1 5 10
atg ctg gat gat gat ggg gac acc acc atg agc ctg cat tct caa gcc 159
Met Leu Asp Asp Asp Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala
15 20 25
tct gcc aca act cgg cat cca gag ccc cgg cgc aca gag cac agg gct 207
Ser Ala Thr Thr Arg His Pro Glu Pro Arg Arg Thr Glu His Arg Ala
30 35 40
ccc tct tca acg tgg cga cca gtg gcc ctg acc ctg ctg act ttg tgc 255
Pro Ser Ser Thr Trp Arg Pro Val Ala Leu Thr Leu Leu Thr Leu Cys
45 50 55
ttg gtg ctg ctg ata ggg ctg gca gcc ctg ggg ctt ttg ttt ttt cag 303
Leu Val Leu Leu Ile Gly Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln
60 65 70
tac tac cag ctc tcc aat act ggt caa gac acc att tct caa atg gaa 351
Tyr Tyr Gln Leu Ser Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu
75 80 85 90
gaa aga tta gga aat acg tcc caa gag ttg caa tct ctt caa gtc cag 399
Glu Arg Leu Gly Asn Thr Ser Gln Glu Leu Gln Ser Leu Gln Val Gln
95 100 105
aat ata aag ctt gca gga agt ctg cag cat gtg gct gaa aaa ctc tgt 447
Asn Ile Lys Leu Ala Gly Ser Leu Gln His Val Ala Glu Lys Leu Cys
110 115 120
cgt gag ctg tat aac aaa gct gga gca cac agg tgc agc cct tgt aca 495
Arg Glu Leu Tyr Asn Lys Ala Gly Ala His Arg Cys Ser Pro Cys Thr
125 130 135
gaa caa tgg aaa tgg cat gga gac aat tgc tac cag ttc tat aaa gac 543
Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln Phe Tyr Lys Asp
140 145 150

[illegible]

gtttttgggg aatttacaag agtactgatt acatgattat ctggagaaaa taagatgtct 1941
ttgaaataca tgttggcttc aagaaaacag ttttaacgtt ttcttaaaat gaaatctttt 2001
gaggtgagct tatggcatca acacatgggt gatgaggaag ctgagttgca ttagtgacaca 2061
tgatttccag tcaggtcatg ggaaatgaac agagacagtg acatctttgt agctgctcct 2121
ttgtgaggca cttctttctt gagatgactc catgcacaaa tataacaggg atcattggga 2181
atgacaccat cacagccacc aagnttattg gggtactgat aat 2224

<210> 23
<211> 280
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<223> n = a or c or g or t

<400> 23

Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp Met Leu Asp Asp Asp Gly
1 5 10 15

Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr Arg His
20 25 30

Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg
35 40 45

Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly
50 55 60

Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn
65 70 75 80

Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr
85 90 95

Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly
100 105 110

Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
115 120 125

Ala Gly Ala His Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His
130 135 140

Gly Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp
145 150 155 160

Cys Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn
165 170 175

Lys Gln Glu Asp Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe
180 185 190

Phe Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala
195 200 205

Trp Leu Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile
210 215 220

Ile Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu
225 230 235 240

Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val
245 250 255

Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro
260 265 270

Pro Glu Thr Leu Gly Glu Gly Asp
275 280

<210> 24
<211> 996
<212> DNA
<213> Homo sapiens

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<222> (38)..(979)

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Met Gln Ala Lys Tyr Ser
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agc acg atg gac atg ctg gat gat gat ggg gac acc acc atg agc ctg 103
Ser Thr Met Asp Met Leu Asp Asp Asp Gly Asp Thr Thr Met Ser Leu
10 15 20

cat tct caa gcc tct gcc aca act cgg cat cca gag ccc cgg cgc aca 151
His Ser Gln Ala Ser Ala Thr Thr Arg His Pro Glu Pro Arg Arg Thr
25 30 35

gag cac agg gct ccc tct tca acg tgg cga cca gtg gcc ctg acc ctg 199
Glu His Arg Ala Pro Ser Ser Thr Trp Arg Pro Val Ala Leu Thr Leu
40 45 50

ctg act ttg tgc ttg gtg ctg ctg ata ggg ctg gca gcc ctg ggg ctt 247
Leu Thr Leu Cys Leu Val Leu Leu Ile Gly Leu Ala Ala Leu Gly Leu
55 60 65 70

ttg ttt ttt cag tac tac cag ctc tcc aat act ggt caa gac acc att 295

Leu	Phe	Phe	Gln	Tyr	Tyr	Gln	Leu	Ser	Asn	Thr	Gly	Gln	Asp	Ile		
				75					80					85		
tct	caa	atg	gaa	gaa	aga	tta	gga	aat	acg	tcc	caa	gag	ttg	caa	tct	343
Ser	Gln	Met	Glu	Glu	Arg	Leu	Gly	Asn	Thr	Ser	Gln	Glu	Leu	Gln	Ser	
			90					95					100			
ctt	caa	gtc	cag	aat	ata	aag	ctt	gca	gga	agt	ctg	cag	cat	gtg	gct	391
Leu	Gln	Val	Gln	Asn	Ile	Lys	Leu	Ala	Gly	Ser	Leu	Gln	His	Val	Ala	
		105					110					115				
gaa	aaa	ctc	tgt	cgt	gag	ctg	tat	aac	aaa	gct	gga	ggc	tat	aca	aga	439
Glu	Lys	Leu	Cys	Arg	Glu	Leu	Tyr	Asn	Lys	Ala	Gly	Gly	Tyr	Thr	Arg	
	120					125					130					
aac	atg	gtg	cca	gca	tct	gct	tct	tct	gag	agc	ctc	agg	cag	ctt	cca	487
Asn	Met	Val	Pro	Ala	Ser	Ala	Ser	Ser	Glu	Ser	Leu	Arg	Gln	Leu	Pro	
135					140				145						150	
cac	atg	ggg	gaa	agt	gca	gca	gca	cac	agg	tgc	agc	cct	tgt	aca	gaa	535
His	Met	Gly	Glu	Ser	Ala	Ala	Ala	His	Arg	Cys	Ser	Pro	Cys	Thr	Glu	
				155					160					165		
caa	tgg	aaa	tgg	cat	gga	gac	aat	tgc	tac	cag	ttc	tat	aaa	gac	agc	583
Gln	Trp	Lys	Trp	His	Gly	Asp	Asn	Cys	Tyr	Gln	Phe	Tyr	Lys	Asp	Ser	
			170				175						180			
aaa	agt	tgg	gag	gac	tgt	aaa	tat	ttc	tgc	ctt	agt	gaa	aac	tct	acc	631
Lys	Ser	Trp	Glu	Asp	Cys	Lys	Tyr	Phe	Cys	Leu	Ser	Glu	Asn	Ser	Thr	
		185					190					195				
atg	ctg	aag	ata	aac	aaa	caa	gaa	gac	ctg	gaa	ttt	gcc	gcg	tct	cag	679
Met	Leu	Lys	Ile	Asn	Lys	Gln	Glu	Asp	Leu	Glu	Phe	Ala	Ala	Ser	Gln	
	200					205					210					
agc	tac	tct	gag	ttt	ttc	tac	tct	tat	tgg	aca	ggg	ctt	ttg	ggc	cct	727
Ser	Tyr	Ser	Glu	Phe	Phe	Tyr	Ser	Tyr	Trp	Thr	Gly	Leu	Leu	Arg	Pro	
215					220					225					230	
gac	agt	ggc	aag	gcc	tgg	ctg	tgg	atg	gat	gga	acc	cct	ttc	act	tct	775
Asp	Ser	Gly	Lys	Ala	Trp	Leu	Trp	Met	Asp	Gly	Thr	Pro	Phe	Thr	Ser	
				235					240					245		
gaa	ctg	ttc	cat	att	ata	ata	gat	gtc	acc	agc	cca	aga	agc	aga	gac	823
Glu	Leu	Phe	His	Ile	Ile	Ile	Asp	Val	Thr	Ser	Pro	Arg	Ser	Arg	Asp	
			250				255						260			
tgt	gtg	gcc	atc	ctt	aat	ggg	atg	atc	ttc	tca	aag	gac	tgc	aaa	gaa	871
Cys	Val	Ala	Ile	Leu	Asn	Gly	Met	Ile	Phe	Ser	Lys	Asp	Cys	Lys	Glu	
		265					270					275				
ttg	aag	cgt	tgt	gtc	tgt	gag	aga	agg	gca	gga	atg	gtg	aag	cca	gag	919
Leu																

<210> 25
 <211> 314
 <212> PRT
 <213> Homo sapiens

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Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg
 35 40 45

Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly
 50 55 60

Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn
 65 70 75 80

Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr
 85 90 95

Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly
 100 105 110

Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
 115 120 125

Ala Gly Gly Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser Glu
 130 135 140

Ser Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His Arg
 145 150 155 160

Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr
 165 170 175

Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys
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Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp Leu
 195 200 205

Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp
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Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu Trp Met Asp
225 230 235 240

Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val Thr
245 250 255

Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile Phe
260 265 270

Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg Ala
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Gly Met Val Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu Gly
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Glu Gly Asp Met His His His His His His
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Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp
1 5 10

atg ctg gat gat gat ggg gac acc acc atg agc ctg cat tct caa gcc 159
Met Leu Asp Asp Asp Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala
15 20 25

tct gcc aca act cgg cat cca gag ccc cgg cgc aca gtt ttt cag tac 207
Ser Ala Thr Thr Arg His Pro Glu Pro Arg Arg Thr Val Phe Gln Tyr
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tac cag ctg tcc aat act ggt caa gac acc att tct caa atg gaa gaa 255
Tyr Gln Leu Ser Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu
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aga tta gga aat acg tcc caa gag ttg caa tct ctt caa gtc cag aat 303
Arg Leu Gly Asn Thr Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn
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ata aag ctt gca gga agt ctg cag cat gtg gct gaa aaa ctc tgt cgt	351
Ile Lys Leu Ala Gly Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg	
75 80 85 90	
gag ctg tat aac aaa gct gga gca cac agg tgc agc cct tgt aca gaa	399
Glu Leu Tyr Asn Lys Ala Gly Ala His Arg Cys Ser Pro Cys Thr Glu	
95 100 105	
caa tgg aaa tgg cat gga gac aat tgc tac cag ttc tat aaa gac agc	447
Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser	
110 115 120	
aaa agt tgg gag gac tgt aaa tat ttc tgc ctt agt gaa aac tct acc	495
Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr	
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atg ctg aag ata aac aaa caa gaa gac ctg gaa ttt gcc gcg tct cag	543
Met Leu Lys Ile Asn Lys Gln Glu Asp Leu Glu Phe Ala Ala Ser Gln	
140 145 150	
agc tac tct gag ttt ttc tac tct tat tgg aca ggg ctt ttg cgc cct	591
Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro	
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gac agt ggc aag gcc tgg ctg tgg atg gat gga acc cct ttc act tct	639
Asp Ser Gly Lys Ala Trp Leu Trp Met Asp Gly Thr Pro Phe Thr Ser	
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gaa ctg ttc cat att ata ata gat gtc acc agc cca aga agc aga gac	687
Glu Leu Phe His Ile Ile Ile Asp Val Thr Ser Pro Arg Ser Arg Asp	
190 195 200	
tgt gtg gcc atc ctt aat ggg atg atc ttc tca aag gac tgc aaa gaa	735
Cys Val Ala Ile Leu Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu	
205 210 215	
ttg aag cgt tgt gtc tgt gag aga agg gca gga atg gtg aag cca gag	783
Leu Lys Arg Cys Val Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu	
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Ser Leu His Val Pro Pro Glu Thr Leu Gly Glu Gly Asp	
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 gcttttcaaa atatgatagc ggtcattatt ttgattgtgc cttactgaaa gtttttgggg 1792
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 tcagggtcatg ggaaatgaac agagacagtg acatctttgt agctgctcct ttgtgaggca 2032
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 Pro Glu Pro Arg Arg Thr Val Phe Gln Tyr Tyr Gln Leu Ser Asn Thr
 35 40 45
 Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr Ser
 50 55 60
 Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly Ser
 65 70 75 80
 Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys Ala
 85 90 95
 Gly Ala His Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly
 100 105 110

Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys
115 120 125

Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys
130 135 140

Gln Glu Asp Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe
145 150 155 160

Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp
165 170 175

Leu Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile
180 185 190

Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn
195 200 205

Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys
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Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro Pro
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Glu Thr Leu Gly Glu Gly Asp
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<210> 28
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aagtcctagg actgatctcc aggaccagca ctcttctccc agcccttagg gtcttgctcg 180
gccaaggcct tccctgcc atg cga cct gtc agt gtc tgg cag tgg agc ccc 231
Met Arg Pro Val Ser Val Trp Gln Trp Ser Pro
1 5 10
tgg ggg ctg ctg ctg tgc ctg ctg tgc agt tgc tgc ttg ggg tct ccg 279
Trp Gly Leu Leu Leu Cys Leu Leu Cys Ser Ser Cys Leu Gly Ser Pro
15 20 25
tcc cct tcc acg ggc cct gag aag aag gcc ggg agc cag ggg ctt cgg 327
Ser Pro Ser Thr Gly Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg
30 35 40

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ata cag cga gct ggt gaa tgg ggc acc atc tgc gat gat gac ttc acg Ile Gln Arg Ala Gly Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr 60 65 70 75	423
ctg cag gct gcc cac atc ctc tgc cgg gag ctg ggc ttc aca gag gcc Leu Gln Ala Ala His Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala 80 85 90	471
aca ggc tgg acc cac agt gcc aaa tat ggc cct gga aca ggc cgc atc Thr Gly Trp Thr His Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile 95 100 105	519
tgg ctg gac aac ttg agc tgc agt ggg acc gag cag agt gtg act gaa Trp Leu Asp Asn Leu Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu 110 115 120	567
tgt gcc tcc cgg ggc tgg ggg aac agt gac tgt acc cac gat gag gat Cys Ala Ser Arg Gly Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp 125 130 135	615
gct ggg gtc atc tgc aaa gac cag cgc ctc cct ggc ttc tcg gac tcc Ala Gly Val Ile Cys Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser 140 145 150 155	663
aat gtc att gag gta gag cat cac ctg caa gtg gag gag gtg cga att Asn Val Ile Glu Val Glu His His Leu Gln Val Glu Glu Val Arg Ile 160 165 170	711
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ggc tgg agc gcc cac aac agc cac gtg gtc tgc ggg atg ctg ggc ttc Gly Trp Ser Ala His Asn Ser His Val Val Cys Gly Met Leu Gly Phe 205 210 215	855
ccc agc gaa aag agg gtc aac gcg gcc ttc tac agg ctg cta gcc caa Pro Ser Glu Lys Arg Val Asn Ala Ala Phe Tyr Arg Leu Leu Ala Gln 220 225 230 235	903
cgg cag caa cac tcc ttt ggt ctg cat ggg gtg gcg tgc gtg ggc acg Arg Gln Gln His Ser Phe Gly Leu His Gly Val Ala Cys Val Gly Thr 240 245 250	951
gag gcc cac ctc tcc ctc tgt tcc ctg gag ttc tat cgt gcc aat gac Glu Ala His Leu Ser Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp 255 260 265	999
acc gcc agg tgc cct ggg ggg ggc cct gca gtg gtg agc tgt gtg cca Thr Ala Arg Cys Pro Gly Gly Gly Pro Ala Val Val Ser Cys Val Pro 270 275 280	1047
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aag cct cag ggg gag gtc cgt gtc cgt cta aag ggc ggc gcc cac cct	1143
Lys Pro Gln Gly Glu Val Arg Val Arg Leu Lys Gly Gly Ala His Pro	
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Gly Glu Gly Arg Val Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val	
320 325 330	
tgt tac cgc aag tgg gac ctg cat gca gcc agc gtg gtg tgt cgg gag	1239
Cys Tyr Arg Lys Trp Asp Leu His Ala Ala Ser Val Val Cys Arg Glu	
335 340 345	
ctg ggc ttc ggg agt gct cga gaa gct ctg agt ggc gct cgc atg ggg	1287
Leu Gly Phe Gly Ser Ala Arg Glu Ala Leu Ser Gly Ala Arg Met Gly	
350 355 360	
cag ggc atg ggt gct atc cac ctg agt gaa gtt cgc tgc tct gga cag	1335
Gln Gly Met Gly Ala Ile His Leu Ser Glu Val Arg Cys Ser Gly Gln	
365 370 375	
gag ctc tcc ctc tgg aag tgc ccc cac aag aac atc aca gct gag gat	1383
Glu Leu Ser Leu Trp Lys Cys Pro His Lys Asn Ile Thr Ala Glu Asp	
380 385 390 395	
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Cys Ser His Ser Gln Asp Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr	
400 405 410	
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Gly Ala Glu Thr Arg Ile Arg Leu Ser Gly Gly Arg Ser Gln His Glu	
415 420 425	
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Leu Ile Cys Gly Asp Asp Trp Gly Thr Leu Glu Ala Met Val Ala Cys	
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Arg Gln Leu Gly Leu Gly Tyr Ala Asn His Gly Leu Gln Glu Thr Trp	
460 465 470 475	
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Tyr Trp Asp Ser Gly Asn Ile Thr Glu Val Val Met Ser Gly Val Arg	
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Cys Thr Gly Thr Glu Leu Ser Leu Asp Gln Cys Ala His His Gly Thr	
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His Ile Thr Cys Lys Arg Thr Gly Thr Arg Phe Thr Ala Gly Val Ile	
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Cys Ser Glu Thr Ala Ser Asp Leu Leu Leu His Ser Ala Leu Val Gln	
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Glu Thr Ala Tyr Ile Glu Asp Arg Pro Leu His Met Leu Tyr Cys Ala	
540 545 550 555	

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gaa gta gca gag agt gac ttt acc aac aat gca atg aaa tgt aac tgc Glu Val Ala Glu Ser Asp Phe Thr Asn Asn Ala Met Lys Cys Asn Cys 700 705 710 715	2343
aaa tat gat gga cat aga atc tgg gtg cac aac tgc cac att ggt gat Lys Tyr Asp Gly His Arg Ile Trp Val His Asn Cys His Ile Gly Asp 720 725 730	2391
gcc ttc agt gaa gag gcc aac agg agg ttt gaa cgc tac cct ggc cag Ala Phe Ser Glu Glu Ala Asn Arg Arg Phe Glu Arg Tyr Pro Gly Gln 735 740 745	2439
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Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala Ala His
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Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile Trp Leu Asp Asn Leu
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Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys
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Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser Asn Val Ile Glu Val
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Glu His His Leu Gln Val Glu Glu Val Arg Ile Arg Pro Ala Val Gly
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Trp Gly Arg Arg Pro Leu Pro Val Thr Glu Gly Leu Val Glu Val Arg

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Asn Ser His Val Val Cys Gly Met Leu Gly Phe Pro Ser Glu Lys Arg		
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Phe Gly Leu His Gly Val Ala Cys Val Gly Thr Glu Ala His Leu Ser		
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Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp Thr Ala Arg Cys Pro		
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Gly Gly Gly Pro Ala Val Val Ser Cys Val Pro Gly Pro Val Tyr Ala		
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Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val Cys Tyr Arg Lys Trp		
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Gln Ile Gly Gly Pro Gly Pro Leu Arg Trp Gly Leu Ile Cys Gly Asp
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Gly Tyr Ala Asn His Gly Leu Gln Glu Thr Trp Tyr Trp Asp Ser Gly
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Leu Ser Leu Asp Gln Cys Ala His His Gly Thr His Ile Thr Cys Lys
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Arg Thr Gly Thr Arg Phe Thr Ala Gly Val Ile Cys Ser Glu Thr Ala
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Ser Asp Leu Leu Leu His Ser Ala Leu Val Gln Glu Thr Ala Tyr Ile
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Glu Asp Arg Pro Leu His Met Leu Tyr Cys Ala Ala Glu Glu Asn Cys
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Arg Pro Lys Ala Gly Arg His Ser Trp Val Trp His Glu Cys His Gly
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His Tyr His Ser Met Asp Phe Phe Thr His Tyr Asp Ile Leu Thr Pro
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Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp Val Lys Pro Gly Asn
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Tyr Ile Leu Gln Val Val Ile Asn Pro Asn Phe Glu Val Ala Glu Ser
690 695 700

Asp Phe Thr Asn Asn Ala Met Lys Cys Asn Cys Lys Tyr Asp Gly His
705 710 715 720

Arg Ile Trp Val His Asn Cys His Ile Gly Asp Ala Phe Ser Glu Glu
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cctgcc atg cga cct gtc agt gtc tgg cag tgg agc ccc tgg ggg ctg 168
Met Arg Pro Val Ser Val Trp Gln Trp Ser Pro Trp Gly Leu
1 5 10
ctg ctg tgc ctg ctg tgc agt tgc tgc ttg ggg tct cca tcc cct tcc 216
Leu Leu Cys Leu Leu Cys Ser Ser Cys Leu Gly Ser Pro Ser Pro Ser
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acg ggc cct gag aag aag gcc ggg agc cag ggg ctt cgg ttc cgg ctg 264
Thr Gly Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg Phe Arg Leu
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gct ggc ttc ccc agg aag ccc tac gag ggc cgc gtg gag ata cag cga 312
Ala Gly Phe Pro Arg Lys Pro Tyr Glu Gly Arg Val Glu Ile Gln Arg
50 55 60
gct ggt gaa tgg ggc acc atc tgc gat gat gac ttc acg ctg cag gct 360
Ala Gly Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala
65 70 75
gcc cac atc ctc tgc cgg gag ctg ggc ttc aca gag gcc aca ggc tgg 408
Ala His Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala Thr Gly Trp
80 85 90
acc cac agt gcc aaa tat ggc cct gga aca ggc cgc atc tgg ctg gac 456
Thr His Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile Trp Leu Asp
95 100 105 110
aac ttg agc tgc agt ggg acc gag cag agt gtg act gaa tgt gcc tcc 504

Asn	Leu	Ser	Cys	Ser	Gly	Thr	Glu	Gln	Ser	Val	Thr	Glu	Cys	Ala	Ser	
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Arg	Gly	Trp	Gly	Asn	Ser	Asp	Cys	Thr	His	Asp	Glu	Asp	Ala	Gly	Val	
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Glu	Ala	Arg	Val	Arg	Leu	Lys	Gly	Gly	Ala	His	Pro	Gly	Glu	Gly	Arg	
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Val	Glu	Val	Leu	Lys	Ala	Ser	Thr	Trp	Gly	Thr	Val	Cys	Asp	Arg	Lys	
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agt	gct	cga	gaa	gct	ctg	agt	ggc	gct	cgc	atg	ggg	cag	ggc	atg	ggt	792
Ser	Ala	Arg	Glu	Ala	Leu	Ser	Gly	Ala	Arg	Met	Gly	Gln	Gly	Met	Gly	
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gct	atc	cac	ctg	agt	gaa	gtt	cgc	tgc	tct	gga	cag	gag	ctc	tcc	ctc	840
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Trp	Lys	Cys	Pro	His	Lys	Asn	Ile	Thr	Ala	Glu	Asp	Cys	Ser	His	Ser	
	240					245					250					
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Gln	Asp	Ala	Gly	Val	Arg	Cys	Asn	Leu	Pro	Tyr	Thr	Gly	Ala	Glu	Thr	
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agg	atc	cga	ctc	agt	ggg	ggc	cgc	agc	caa	cat	gag	ggg	cga	gtc	gag	984
Arg	Ile	Arg	Leu	Ser	Gly	Gly	Arg	Ser	Gln	His	Glu	Gly	Arg	Val	Glu	
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gtg	caa	ata	ggg	gga	cct	ggg	ccc	ctt	cgc	tgg	ggc	ctc	atc	tgt	ggg	1032
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Asp	Asp	Trp	Gly	Thr	Leu	Glu	Ala	Met	Val	Ala	Cys	Arg	Gln	Leu	Gly	
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Cys Leu Ala Ser Ser Ala Arg Ser Ala Asn Trp Pro Tyr Gly His Arg	
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Phe Arg Pro Lys Ala Gly Arg His Ser Trp Val Trp His Glu Cys His	
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Gly His Tyr His Ser Met Asp Phe Phe Thr His Tyr Asp Ile Leu Thr	
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Pro Asn Gly Thr Lys Val Ala Glu Gly His Lys Ala Ser Phe Cys Leu	
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His Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp Val Lys Pro Gly	
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att atc taagtgccac tgcctctgc aaaccaccac tggcccctaa tggcaggggt	2000
Ile Ile	

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Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala Ala His
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Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys

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Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser Asn Val Ile Glu Ala
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Val Leu Lys Ala Ser Thr Trp Gly Thr Val Cys Asp Arg Lys Trp Asp
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His Leu Ser Glu Val Arg Cys Ser Gly Gln Glu Leu Ser Leu Trp Lys
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Cys Pro His Lys Asn Ile Thr Ala Glu Asp Cys Ser His Ser Gln Asp
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Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr Gly Ala Glu Thr Arg Ile
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Arg Leu Ser Gly Gly Arg Ser Gln His Glu Gly Arg Val Glu Val Gln
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Ile Gly Gly Pro Gly Pro Leu Arg Trp Gly Leu Ile Cys Gly Asp Asp
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Trp Gly Thr Leu Glu Ala Met Val Ala Cys Arg Gln Leu Gly Leu Gly
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Tyr Ala Asn His Gly Leu Gln Glu Thr Trp Tyr Trp Asp Ser Gly Asn
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Ile Thr Glu Val Val Met Ser Gly Val Arg Cys Thr Gly Thr Glu Leu
340 345 350

Ser Leu Asp Gln Cys Ala His His Gly Thr His Ile Thr Cys Lys Arg
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Thr Gly Thr Arg Phe Thr Ala Gly Val Ile Cys Ser Glu Thr Ala Ser
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Asp Leu Leu Leu His Ser Ala Leu Val Gln Glu Thr Ala Tyr Ile Glu
385 390 395 400

Asp Arg Pro Leu His Met Leu Tyr Cys Ala Ala Glu Glu Asn Cys Leu
405 410 415

Ala Ser Ser Ala Arg Ser Ala Asn Trp Pro Tyr Gly His Arg Arg Leu
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Leu Arg Phe Ser Ser Gln Ile His Asn Leu Gly Arg Ala Asp Phe Arg
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Pro Lys Ala Gly Arg His Ser Trp Val Trp His Glu Cys His Gly His
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Tyr His Ser Met Asp Phe Phe Thr His Tyr Asp Ile Leu Thr Pro Asn
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Gly Thr Lys Val Ala Glu Gly His Lys Ala Ser Phe Cys Leu Glu Asp
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Thr Glu Cys Gln Glu Asp Val Ser Lys Arg Tyr Glu Cys Ala Asn Phe
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Gly Glu Gln Gly Ile Thr Val Gly Cys Trp Asp Leu Tyr Arg His Asp
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Ile Leu Gln Val Val Ile Asn Pro Asn Phe Glu Val Ala Glu Ser Asp
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Phe Thr Asn Asn Ala Met Lys Cys Asn Cys Lys Tyr Asp Gly His Arg
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gaaaccattt ccctaagaga agctctgttc cttggcttgt ccttccttcc cgggaaggaa	300
gcttcagagg aacgaaggga gaagctttgt tttgcctgca gaagcagccc tgtgctcggc	360
tgaggggttct cagctggctg tgaactgcgg agcattgtag gcgcctggct ggtcaggcc	420
aatgcagaag tctctccctt ctccaaagac ccaaattccc acagaaccag cttcagagta	480
ctttcccttc aaggggatta aaataattgt gatattgtggc gctctccgtt cggggtgta	540
ttttcctgtt gtgttaaattg cctcttatta agtaatagat gtgatttatg tgaacgacga	600
aggggtgtgt ggtggattcg gtgattaatc agtgaattcc catcgcctgg catctctcac	660
tgccctctt gcgtgatgta agatcagacg taccctgcat tgaaaagtca agacacagg	720
gcgtctcgt cgcgtcaca cagctctgc ctctctctc cagcacgcgc gcacccctcc	780
accttcaca tctgctcca ggcaggagaa ggtgactgg ctggactcat tgagctgaag	840
aatttcagat gacatttgta a atg acg ccg ctc ggt tcc agg ctc caa gcg	891
Met Thr Pro Leu Gly Ser Arg Leu Gln Ala	
1 5 10	
gcc cct gcc gcc gcc gcc gcc gcc ggg ccg aag gtg ccg ccg agc agt	939
Ala Pro Ala Ala Ala Ala Ala Ala Gly Pro Lys Val Pro Pro Ser Ser	
15 20 25	
ctc cag cgc agg ctt cct tac ccg gcg acc aca atg tcc gag ttt ctc	987
Leu Gln Arg Arg Leu Pro Tyr Arg Ala Thr Thr Met Ser Glu Phe Leu	
30 35 40	
ctc gcc tta ctc act ctc tgc gga tta ttg ccg att gcc agg gtg ctg	1035
Leu Ala Leu Leu Thr Leu Ser Gly Leu Leu Pro Ile Ala Arg Val Leu	
45 50 55	
acc gtg gga gcc gac cga gat cag cag ttg tgt gat cct ggt gaa ttt	1083
Thr Val Gly Ala Asp Arg Asp Gln Gln Leu Cys Asp Pro Gly Glu Phe	
60 65 70	
ctt tgc cac gat cac gtg act tgt gtc tcc ccg agc tgg ctg tgt gat	1131
Leu Cys His Asp His Val Thr Cys Val Ser Arg Ser Trp Leu Cys Asp	
75 80 85 90	
ggg gac cct gac tgc cct gat gat tca gac gag tct tta gat acc tgt	1179
Gly Asp Pro Asp Cys Pro Asp Asp Ser Asp Glu Ser Leu Asp Thr Cys	
95 100 105	
ccc gag gag gta gaa atc aag tgc ccc ttg aat cac att gct tgc ctt	1227
Pro Glu Glu Val Glu Ile Lys Cys Pro Leu Asn His Ile Ala Cys Leu	
110 115 120	

ggg Gly	acc Thr	aac Asn 125	aaa Lys	tgt Cys	gtt Val	cat His	tta Leu 130	tcc Ser	cag Gln	ctg Leu	tgc Cys 135	aat Asn	ggt Gly	gtc Val	ttg Leu	1275
gac Asp	tgc Cys 140	cca Pro	gat Asp	ggg Gly	tat Tyr	gac Asp 145	gaa Glu	gga Gly	gta Val	cat His	tgt Cys 150	cag Gln	gaa Glu	ctg Leu	tta Leu	1323
tcc Ser 155	aat Asn	tgc Cys	caa Gln	cag Gln	ctg Leu 160	aat Asn	tgt Cys	cag Gln	tat Tyr	aaa Lys 165	tgt Cys	aca Thr	atg Met	gtc Val	aga Arg 170	1371
aat Asn	agt Ser	aca Thr	aga Arg	tgt Cys 175	tac Tyr	tgt Cys	gag Glu	gat Asp	gga Gly 180	ttc Phe	gaa Glu	ata Ile	aca Thr	gaa Glu 185	gat Asp	1419
ggg Gly	aga Arg	agc Ser	tgt Cys 190	aaa Lys	gat Asp	caa Gln	gat Asp 195	gaa Glu	tgt Cys	gct Ala	gtt Val	tat Tyr	ggt Gly 200	aca Thr	tgc Cys	1467
agc Ser	cag Gln	acc Thr 205	tgc Cys	aga Arg	aac Asn	aca Thr	cat His 210	gga Gly	tcc Ser	tac Tyr	act Thr 215	tgc Cys	agt Ser	tgt Cys	gtg Val	1515
gaa Glu	ggc Gly 220	tac Tyr	cta Leu	atg Met	cag Gln	cca Pro 225	gac Asp	aac Asn	aga Arg	tct Ser	tgc Cys 230	aag Lys	gct Ala	aaa Lys	att Ile	1563
gaa Glu 235	cct Pro	aca Thr	gat Asp	aga Arg	cca Pro 240	cct Pro	ata Ile	cta Leu	tta Leu	att Ile 245	gca Ala	aat Asn	ttt Phe	gaa Glu 250	aca Thr 250	1611
att Ile	gag Glu	gtt Val	ttc Phe 255	tat Tyr	ctt Leu	aat Asn	gga Gly	agt Ser	aaa Lys 260	atg Met	gca Ala	act Thr	cta Leu	agc Ser 265	tca Ser 265	1659
gtc Val	aat Asn	gga Gly 270	aat Asn	gaa Glu	att Ile	cat His	act Thr 275	ctg Leu	gat Asp	ttt Phe	att Ile 280	tat Tyr	aat Asn	gaa Glu	gat Asp	1707
gtg Val	att Ile	tgt Cys 285	tgg Trp	att Ile	gaa Glu	tca Ser	aga Arg 290	gaa Glu	tct Ser	tca Ser	aat Asn 295	caa Gln	ctc Leu	aaa Lys	tgt Cys	1755
atc Ile	cag Gln 300	ata Ile	aca Thr	aaa Lys	gca Ala	gga Gly 305	gga Gly	tta Leu	aca Thr	gat Asp	gaa Glu 310	tgg Trp	aca Thr	atc Ile	aat Asn	1803
att Ile 315	ctt Leu	caa Gln	tcc Ser	ttc Phe	cac His 320	aat Asn	gtg Val	caa Gln	caa Gln	atg Met 325	gcg Ala	att Ile	gac Asp	tgg Trp	ctc Leu 330	1851
act Thr	cga Arg	aat Asn	ctc Leu	tat Tyr 335	ttt Phe	gtg Val	gac Asp	cat His	gtc Val 340	ggg Gly	gac Asp	cgg Arg	atc Ile	ttt Phe 345	gtt Val	1899
tgt Cys	aat Asn	tcc Ser	aac Asn 350	ggg Gly	tct Ser	gta Val	tgt Cys	gtc Val 355	acc Thr	ctg Leu	att Ile	gat Asp	ctg Leu 360	gag Glu	ctt Leu	1947
cac His	aat Asn	cct Pro 365	aaa Lys	gca Ala	ata Ile	gca Ala	gta Val 370	gat Asp	cca Pro	ata Ile	gca Ala 375	gga Gly	aaa Lys	ctt Leu	ttc Phe	1995

ttt Phe	act Thr	gac Asp	tac Tyr	ggg Gly	aat Asn	gtc Val	gcc Ala	aaa Lys	gtg Val	gag Glu	aga Arg	tgt Cys	gac Asp	atg Met	gat Asp	2043
380						385					390					
ggg Gly	atg Met	aac Asn	cga Arg	aca Thr	agg Arg	ata Ile	att Ile	gat Asp	tca Ser	aag Lys	aca Thr	gag Glu	cag Gln	cca Pro	gct Ala	2091
395					400					405					410	
gca Ala	ctg Leu	gca Ala	cta Leu	gac Asp	cta Leu	gtc Val	aac Asn	aaa Lys	ttg Leu	gtt Val	tac Tyr	tgg Trp	gta Val	gat Asp	ctt Leu	2139
				415					420					425		
tac Tyr	ttg Leu	gac Asp	tat Tyr	gtg Val	gga Gly	gta Val	gtg Val	gac Asp	tat Tyr	caa Gln	gga Gly	aaa Lys	aat Asn	aga Arg	cac His	2187
			430					435					440			
act Thr	gtc Val	att Ile	caa Gln	ggc Gly	aga Arg	caa Gln	gtc Val	aga Arg	cat His	ctt Leu	tat Tyr	ggt Gly	ata Ile	act Thr	gtg Val	2235
		445					450					455				
ttt Phe	gaa Glu	gat Asp	tat Tyr	ttg Leu	tat Tyr	gca Ala	acc Thr	aat Asn	tct Ser	gat Asp	aac Asn	tac Tyr	aat Asn	atc Ile	gta Val	2283
460						465					470					
agg Arg	ata Ile	aac Asn	cga Arg	ttt Phe	aat Asn	ggg Gly	act Thr	gat Asp	att Ile	cac His	tca Ser	tta Leu	att Ile	aaa Lys	att Ile	2331
475					480					485					490	
gag Glu	aat Asn	gct Ala	tgg Trp	gga Gly	atc Ile	cga Arg	att Ile	tat Tyr	caa Gln	aaa Lys	aga Arg	act Thr	caa Gln	cca Pro	aca Thr	2379
				495					500					505		
gtc Val	aga Arg	agc Ser	cat His	gca Ala	tgt Cys	gaa Glu	gtc Val	gat Asp	cca Pro	tat Tyr	gga Gly	atg Met	cca Pro	ggg Gly	ggc Gly	2427
			510					515					520			
tgt Cys	tca Ser	cac His	atc Ile	tgt Cys	cta Leu	ctc Leu	agc Ser	agc Ser	agt Ser	tac Tyr	aaa Lys	act Thr	cgg Arg	act Thr	tgt Cys	2475
		525					530					535				
cgc Arg	tgc Cys	agg Arg	act Thr	ggc Gly	ttc Phe	aac Asn	ttg Leu	gga Gly	agt Ser	gat Asp	ggc Gly	agg Arg	tca Ser	tgc Cys	aaa Lys	2523
	540					545					550					
aga Arg	cca Pro	aag Lys	aat Asn	gag Glu	ttg Leu	ttc Phe	ctc Leu	ttt Phe	tat Tyr	ggg Gly	aaa Lys	gga Gly	cgc Arg	cca Pro	gga Gly	2571
555					560					565					570	
att Ile	gtt Val	aga Arg	gga Gly	atg Met	gac Asp	ttg Leu	aat Asn	acc Thr	aag Lys	ata Ile	gct Ala	gat Asp	gaa Glu	tac Tyr	atg Met	2619
				575					580					585		
atc Ile	ccc Pro	ata Ile	gaa Glu	aat Asn	ctg Leu	gta Val	aac Asn	cct Pro	cgt Arg	gct Ala	tta Leu	gac Asp	ttt Phe	cac His	gca Ala	2667
			590					595					600			
gaa Glu	acc Thr	aat Asn	tac Tyr	atc Ile	tac Tyr	ttt Phe	gct Ala	gac Asp	acc Thr	acc Thr	agt Ser	ttc Phe	cta Leu	att Ile	ggc Gly	2715
		605					610					615				
cgg Arg	cag Gln	aag Lys	ata Ile	gat Asp	ggc Gly	aca Thr	gag Glu	aga Arg	gaa Glu	acc Thr	atc Ile	ctg Leu	aaa Lys			

ctg Leu 635	gat Asp	aat Asn	gta Val	gag Glu	ggc Gly 640	att Ile	gct Ala	gtg Val	gac Asp	tgg Trp 645	att Ile	gga Gly	aat Asn	aat Asn	ctt Leu 650	2811
tac Tyr	tgg Trp	acc Thr	aat Asn	gat Asp 655	ggc Gly	cat His	agg Arg	aaa Lys	acc Thr 660	att Ile	aat Asn	gtg Val	gct Ala	agg Arg 665	ctg Leu	2859
gaa Glu	aaa Lys	gct Ala	tct Ser 670	cag Gln	agt Ser	cgg Arg	aag Lys	act Thr 675	ctt Leu	tta Leu	gag Glu	ggc Gly	gaa Glu 680	atg Met	tct Ser	2907
cat His	ccc Pro	aga Arg 685	gga Gly	att Ile	gtg Val	gtg Val	gat Asp 690	cca Pro	att Ile	aat Asn	ggc Gly	tgg Trp 695	atg Met	tat Tyr	tgg Trp	2955
aca Thr	gac Asp 700	tgg Trp	gag Glu	gaa Glu	gat Asp	gaa Glu 705	ata Ile	gat Asp	gac Asp	agc Ser	gtg Val 710	gga Gly	agg Arg	att Ile	gag Glu	3003
aag Lys 715	gcc Ala	tgg Trp	atg Met	gat Asp 720	gga Gly	ttc Phe	aat Asn	cgg Arg	cag Gln	att Ile 725	ttt Phe	gtg Val	act Thr	tca Ser	aag Lys 730	3051
atg Met	ctg Leu	tgg Trp	cca Pro	aac Asn 735	ggc Gly	tta Leu	act Thr	ctg Leu	gac Asp 740	ttt Phe	cac His	acc Thr	aac Asn	aca Thr 745	tta Leu	3099
tac Tyr	tgg Trp	tgt Cys	gat Asp 750	gcc Ala	tat Tyr	tac Tyr	gat Asp	cat His 755	att Ile	gaa Glu	aaa Lys	gta Val	ttt Phe 760	ttg Leu	aat Asn	3147
ggg Gly	act Thr 765	cac His	agg Arg	aag Lys	att Ile	gtt Val	tac Tyr 770	agt Ser	ggg Gly	aga Arg	gag Glu	ttg Leu 775	aac Asn	cac His	cct Pro	3195
ttc Phe 780	gga Gly	ctg Leu	tgc Ser	cat His	cat His	gga Gly 785	aat Asn	tat Tyr	gtg Val	ttc Phe	tgg Trp 790	act Thr	gat Asp	tat Tyr	atg Met	3243
aat Asn 795	ggc Gly	tcc Ser	att Ile	ttt Phe	caa Gln 800	cta Leu	gat Asp	ttg Leu	ata Ile	aca Thr 805	agt Ser	gag Glu	gtg Val	aca Thr	ttg Leu 810	3291
ctg Leu	agg Arg	cat His	gaa Glu 815	aga Arg	cca Pro	ccc Pro	cta Leu	ttt Phe	ggg Gly 820	ctt Leu	cag Gln	att Ile	tat Tyr	gat Asp 825	cca Pro	3339
cga Arg	aag Lys	caa Gln	caa Gln 830	ggc Gly	gac Asp	aat Asn	atg Met	tgc Cys 835	cga Arg	gta Val	aat Asn	aat Asn	ggg Gly 840	ggc Gly	tgt Cys	3387
agt Ser	aca Thr	ctt Leu 845	tgc Cys	ttg Leu	gct Ala	atc Ile	cca Pro 850	gga Gly	ggc Gly	cgg Arg	gtg Val	tgt Cys 855	gct Ala	tgt Cys	gcc Ala	3435
gat Asp	aat Asn 860	caa Gln	ctt Leu	ttg Leu	gat Asp	gaa Glu 865	aat Asn	ggg Gly	aca Thr	act Thr	tgc Cys 870	aca Thr	ttt Phe	aat Asn	cct Pro	3483
gga Gly 875	gaa Glu	gca Ala	cta Leu	cct Pro	cac His 880	ata Ile	tgt Cys	aaa Lys	gct Ala	gga Gly 885	gag Glu	ttt Phe	cgc Arg	tgc Cys	aaa Lys 890	3531

aac aga cac tgt atc caa gct cgg tgg aaa tgt gat ggc gac gat gac Asn Arg His Cys Ile Gln Ala Arg Trp Lys Cys Asp Gly Asp Asp Asp 895 900 905	3579
tgc cta gac gga agc gat gag gat tca gta aac tgc ttc aat cat agc Cys Leu Asp Gly Ser Asp Glu Asp Ser Val Asn Cys Phe Asn His Ser 910 915 920	3627
tgt cct gat gat cag ttt aaa tgc cag aat aat cgc tgc atc ccc aag Cys Pro Asp Asp Gln Phe Lys Cys Gln Asn Asn Arg Cys Ile Pro Lys 925 930 935	3675
aga tgg ctt tgt gat gga gct aat gac tgt ggg agc aat gaa gat gaa Arg Trp Leu Cys Asp Gly Ala Asn Asp Cys Gly Ser Asn Glu Asp Glu 940 945 950	3723
tcc aat caa act tgc aca gcc aga aca tgc cag gta gac cag ttt tct Ser Asn Gln Thr Cys Thr Ala Arg Thr Cys Gln Val Asp Gln Phe Ser 955 960 965 970	3771
tgc gga aat ggg cgt tgc att ccc aga gca tgg ctg tgt gac agg gaa Cys Gly Asn Gly Arg Cys Ile Pro Arg Ala Trp Leu Cys Asp Arg Glu 975 980 985	3819
gac gac tgt ggt gac cag aca gat gaa atg gca tct tgt gaa ttc cca Asp Asp Cys Gly Asp Gln Thr Asp Glu Met Ala Ser Cys Glu Phe Pro 990 995 1000	3867
act tgt gag cca cta acc caa ttc gta tgc aaa agt gga aga tgc Thr Cys Glu Pro Leu Thr Gln Phe Val Cys Lys Ser Gly Arg Cys 1005 1010 1015	3912
att agc agc aaa tgg cac tgc gac tct gat gac gac tgt ggg gac Ile Ser Ser Lys Trp His Cys Asp Ser Asp Asp Asp Cys Gly Asp 1020 1025 1030	3957
ggg agt gat gag gtg ggc tgt gtt cac tct tgc ttt gat aat cag Gly Ser Asp Glu Val Gly Cys Val His Ser Cys Phe Asp Asn Gln 1035 1040 1045	4002
ttc aga tgt tcc agt ggc aga tgc atc cca ggc cac tgg gcc tgt Phe Arg Cys Ser Ser Gly Arg Cys Ile Pro Gly His Trp Ala Cys 1050 1055 1060	4047
gat ggt gac aat gac tgt ggg gac ttc agt gat gaa gcc cag atc Asp Gly Asp Asn Asp Cys Gly Asp Phe Ser Asp Glu Ala Gln Ile 1065 1070 1075	4092
aat tgt act aaa gaa gag att cat tct cct gct ggt tgt aac gga Asn Cys Thr Lys Glu Glu Ile His Ser Pro Ala Gly Cys Asn Gly 1080 1085 1090	4137
aat gaa ttt cag tgc cac cct gat ggt aat tgc gtt cct gat ttg Asn Glu Phe Gln Cys His Pro Asp Gly Asn Cys Val Pro Asp Leu 1095 1100 1105	4182
tgg cgc tgt gat gga gaa aaa gac tgt gaa gat ggt agt gat gaa Trp Arg Cys Asp Gly Glu Lys Asp Cys Glu Asp Gly Ser Asp Glu 1110 1115 1120	4227
aaa ggt tgc aat ggt acc ata cga ttg tgt gac cac aaa acc aag Lys Gly Cys Asn Gly Thr Ile Arg Leu Cys Asp His Lys Thr Lys 1125 1130 1135	4272

3579 3627 3675 3723 3771 3819 3867 3912 3957 4002 4047 4092 4137 4182 4227 4272

ttt	tcc	tgt	tgg	agt	aca	ggg	aga	tgc	atc	aac	aaa	gca	tgg	gtg	4317
Phe	Ser	Cys	Trp	Ser	Thr	Gly	Arg	Cys	Ile	Asn	Lys	Ala	Trp	Val	
		1140					1145					1150			
tgt	gat	gga	gat	att	gat	tgc	gaa	gat	cag	tca	gat	gaa	gat	gac	4362
Cys	Asp	Gly	Asp	Ile	Asp	Cys	Glu	Asp	Gln	Ser	Asp	Glu	Asp	Asp	
		1155					1160					1165			
tgt	gac	agt	ttc	ttg	tgt	gga	cca	ccc	aag	cat	cct	tgt	gct	aat	4407
Cys	Asp	Ser	Phe	Leu	Cys	Gly	Pro	Pro	Lys	His	Pro	Cys	Ala	Asn	
		1170					1175					1180			
gac	acc	tca	gtc	tgc	ctg	cag	cca	gag	aaa	ctc	tgc	aat	ggg	aaa	4452
Asp	Thr	Ser	Val	Cys	Leu	Gln	Pro	Glu	Lys	Leu	Cys	Asn	Gly	Lys	
		1185					1190					1195			
aag	gat	tgt	cct	gat	ggc	tct	gat	gaa	ggc	tat	ctc	tgt	gat	gag	4497
Lys	Asp	Cys	Pro	Asp	Gly	Ser	Asp	Glu	Gly	Tyr	Leu	Cys	Asp	Glu	
		1200					1205					1210			
tgt	tcg	ctg	aac	aat	gga	ggc	tgt	agc	aac	cac	tgt	tct	gtt	gtt	4542
Cys	Ser	Leu	Asn	Asn	Gly	Gly	Cys	Ser	Asn	His	Cys	Ser	Val	Val	
		1215					1220					1225			
cct	gga	aga	gga	att	gtc	tgt	tcc	tgc	cct	gaa	gga	ctt	caa	ctc	4587
Pro	Gly	Arg	Gly	Ile	Val	Cys	Ser	Cys	Pro	Glu	Gly	Leu	Gln	Leu	
		1230					1235					1240			
aac	aaa	gac	aat	aaa	aca	tgt	gaa	att	gtg	gat	tat	tgt	agc	aat	4632
Asn	Lys	Asp	Asn	Lys	Thr	Cys	Glu	Ile	Val	Asp	Tyr	Cys	Ser	Asn	
		1245					1250					1255			
cat	cta	aag	tgc	agc	caa	gta	tgt	gag	cag	cac	aag	cac	aca	gtc	4677
His	Leu	Lys	Cys	Ser	Gln	Val	Cys	Glu	Gln	His	Lys	His	Thr	Val	
		1260					1265					1270			
aag	tgc	tca	tgt	tat	gaa	ggc	tgg	aag	ctg	gat	gta	gac	ggc	gaa	4722
Lys	Cys	Ser	Cys	Tyr	Glu	Gly	Trp	Lys	Leu	Asp	Val	Asp	Gly	Glu	
		1275					1280					1285			
agt	tgt	aca	agt	gtt	gat	cct	ttt	gaa	gca	ttc	atc	atc	ttt	tct	4767
Ser	Cys	Thr	Ser	Val	Asp	Pro	Phe	Glu	Ala	Phe	Ile	Ile	Phe	Ser	
		1290					1295					1300			
att	cgt	cat	gag	atc	aga	agg	att	gat	ctt	cac	aaa	aga	gac	tat	4812
Ile	Arg	His	Glu	Ile	Arg	Arg	Ile	Asp	Leu	His	Lys	Arg	Asp	Tyr	
		1305					1310					1315			
agt	cta	ctt	gtt	cct	gga	ttg	aga	aac	aca	ata	gca	ctt	gat	ttt	4857
Ser	Leu	Leu	Val	Pro	Gly	Leu	Arg	Asn	Thr	Ile	Ala	Leu	Asp	Phe	
		1320					1325					1330			
cac	ttc	aat	caa	agt	tta	ctt	tat	tgg	aca	gat	gtt	gta	gaa	gac	4902
His	Phe	Asn	Gln	Ser	Leu	Leu	Tyr	Trp	Thr	Asp	Val				

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5082
5127
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cgt tct gaa atc aga gga gtg gat	att gac aat cca tac ttt aac	5757
Arg Ser Glu Ile Arg Gly Val Asp	Ile Asp Asn Pro Tyr Phe Asn	
1620	1625 1630	
ttc atc acg gca ttt aca gtc cct	gat att gat gac gtt act gtg	5802
Phe Ile Thr Ala Phe Thr Val Pro	Asp Ile Asp Asp Val Thr Val	
1635	1640 1645	
ata gac ttc gat gca tct gag gaa	cgt tta tac tgg aca gat att	5847
Ile Asp Phe Asp Ala Ser Glu Glu	Arg Leu Tyr Trp Thr Asp Ile	
1650	1655 1660	
aaa aca caa acc att aaa cga gct	ttt att aac gga act ggg tta	5892
Lys Thr Gln Thr Ile Lys Arg Ala	Phe Ile Asn Gly Thr Gly Leu	
1665	1670 1675	
gaa act gtt att tca aga gat att	cag agt atc aga ggg cta gca	5937
Glu Thr Val Ile Ser Arg Asp Ile	Gln Ser Ile Arg Gly Leu Ala	
1680	1685 1690	
gtg gat tgg gtg tca cgt aat tta	tac tgg att agc tca gaa ttt	5982
Val Asp Trp Val Ser Arg Asn Leu	Tyr Trp Ile Ser Ser Glu Phe	
1695	1700 1705	
gat gaa acg caa att aat gtg gca	agg cta gat ggc tct ttg aaa	6027
Asp Glu Thr Gln Ile Asn Val Ala	Arg Leu Asp Gly Ser Leu Lys	
1710	1715 1720	
acc tca att atc cat gga atc gat	aag cca cag tgt ctt gca gct	6072
Thr Ser Ile Ile His Gly Ile Asp	Lys Pro Gln Cys Leu Ala Ala	
1725	1730 1735	
cac cca gtc agg gga aaa ctc tac	tgg acc gat gga aac aca att	6117
His Pro Val Arg Gly Lys Leu Tyr	Trp Thr Asp Gly Asn Thr Ile	
1740	1745 1750	
aac atg gca aat atg gat ggc agt	aat agc aag att ctg ttt cag	6162
Asn Met Ala Asn Met Asp Gly Ser	Asn Ser Lys Ile Leu Phe Gln	
1755	1760 1765	
aat cag aag gag cca gtt ggt cta	tcg ata gac tat gtg gaa aac	6207
Asn Gln Lys Glu Pro Val Gly Leu	Ser Ile Asp Tyr Val Glu Asn	
1770	1775 1780	
aag ctt tat tgg atc agt tcg ggg	aat gga acc ata aat aga tgc	6252
Lys Leu Tyr Trp Ile Ser Ser Gly	Asn Gly Thr Ile Asn Arg Cys	
1785	1790 1795	
aac ctg gat ggt ggt aat tta gaa	gta atc gag tca atg aaa gaa	6297
Asn Leu Asp Gly Gly Asn Leu Glu	Val Ile Glu Ser Met Lys Glu	
1800	1805 1810	
gaa tta aca aaa gct aca gcc cta	acc atc atg gat aag aaa ctg	6342
Glu Leu Thr Lys Ala Thr Ala Leu	Thr Ile Met Asp Lys Lys Leu	
1815	1820 1825	
tgg tgg gca gac caa aac tta gcc	cag cta gga acc tgc agc aaa	6387
Trp Trp Ala Asp Gln Asn Leu Ala	Gln Leu Gly Thr Cys Ser Lys	
1830	1835 1840	
aga gac gga aga aac ccc acc atc	cta cgg aat aag act tct ggg	6432
Arg Asp Gly Arg Asn Pro Thr Ile	Leu Arg Asn Lys Thr Ser Gly	
1845	1850 1855	

gta gtt cat	atg aaa gtc tat gat	aaa gaa gca cag caa	ggc agc	6477
Val Val His	Met Lys Val Tyr Asp	Lys Glu Ala Gln Gln	Gly Ser	
1860	1865	1870		
aat tcc tgc	caa cta aac aat ggt	gga tgc tct caa ctt	tgt tta	6522
Asn Ser Cys	Gln Leu Asn Asn Gly	Gly Cys Ser Gln Leu	Cys Leu	
1875	1880	1885		
cca aca tct	gaa act aca agg act	tgt atg tgt aca gtg	gga tat	6567
Pro Thr Ser	Glu Thr Thr Arg Thr	Cys Met Cys Thr	Val Gly Tyr	
1890	1895	1900		
tat ctc caa	aag aac cgt atg tca	tgt caa ggt ata gaa	tca ttt	6612
Tyr Leu Gln	Lys Asn Arg Met Ser	Cys Gln Gly Ile Glu	Ser Phe	
1905	1910	1915		
ctt atg tac	tct gtt cat gaa gga	atc agg gga ata cct	ctt gaa	6657
Leu Met Tyr	Ser Val His Glu Gly	Ile Arg Gly Ile Pro	Leu Glu	
1920	1925	1930		
cca agt gac	aaa atg gat gct ttg	atg cct ata tca gga	act tca	6702
Pro Ser Asp	Lys Met Asp Ala Leu	Met Pro Ile Ser Gly	Thr Ser	
1935	1940	1945		
ttt gcc gtg	gga ata gat ttc cat	gca gaa aat gat acc	atc tac	6747
Phe Ala Val	Gly Ile Asp Phe His	Ala Glu Asn Asp Thr	Ile Tyr	
1950	1955	1960		
tgg aca gac	atg ggc ttc aat aaa	att agc aga gct aaa	aga gat	6792
Trp Thr Asp	Met Gly Phe Asn Lys	Ile Ser Arg Ala Lys	Arg Asp	
1965	1970	1975		
cag act tgg	aaa gaa gat atc att	acc aat ggc ttg gga	aga gtg	6837
Gln Thr Trp	Lys Glu Asp Ile Ile	Thr Asn Gly Leu Gly	Arg Val	
1980	1985	1990		
gaa ggg ata	gct gtt gac tgg att	gct ggt aac ata tat	tgg aca	6882
Glu Gly Ile	Ala Val Asp Trp Ile	Ala Gly Asn Ile Tyr	Trp Thr	
1995	2000	2005		
gat cat ggt	ttc aac tta att gaa	gtt gca aga ctc aat	ggt tct	6927
Asp His Gly	Phe Asn Leu Ile Glu	Val Ala Arg Leu Asn	Gly Ser	
2010	2015	2020		
ttc cgt tat	gta att att tcc caa	ggc ctg gat caa cca	aga tct	6972
Phe Arg Tyr	Val Ile Ile Ser Gln	Gly Leu Asp Gln Pro	Arg Ser	
2025	2030	2035		
ata gct gtg	cac cca gag aaa ggc	ctc ttg ttc tgg act	gaa tgg	7017
Ile Ala Val	His Pro Glu Lys Gly	Leu Leu Phe Trp Thr	Glu Trp	
2040	2045	2050		
gga caa atg	ccc tgt att gga aag	gct cgc ttg gat ggc	tca gag	7062
Gly Gln Met	Pro Cys Ile Gly Lys	Ala Arg Leu Asp Gly	Ser Glu	
2055	2060	2065		
aag gtt gtc	ctt gta agc atg gga	ata gca tgg ccg aat	ggc atc	7107
Lys Val Val	Leu Val Ser Met Gly	Ile Ala Trp Pro Asn	Gly Ile	
2070	2075	2080		
tcc atc gac	tat gag gaa aat aaa	ttg tac tgg tgt gat	gct cgc	7152
Ser Ile Asp	Tyr Glu Glu Asn Lys	Leu Tyr Trp Cys Asp	Ala Arg	
2085	2090	2095		

aca gac aag	ata gag aga atc gac	ctt gag act gga ggg	aat cgc	7197
Thr Asp Lys	Ile Glu Arg Ile Asp	Leu Glu Thr Gly Gly	Asn Arg	
2100	2105	2110		
gag atg gtg	ctg tca gga agc aat	gtg gat atg ttt tca	gtt gca	7242
Glu Met Val	Leu Ser Gly Ser Asn	Val Asp Met Phe Ser	Val Ala	
2115	2120	2125		
gtc ttt ggg	gct tac atc tac tgg	tct gac aga gca cat	gca aac	7287
Val Phe Gly	Ala Tyr Ile Tyr Trp	Ser Asp Arg Ala His	Ala Asn	
2130	2135	2140		
ggg tct gtc	aga agg ggc cac aag	aat gat gcc aca gaa	acg ata	7332
Gly Ser Val	Arg Arg Gly His Lys	Asn Asp Ala Thr Glu	Thr Ile	
2145	2150	2155		
acc atg aga	acc ggc ctt gga gtc	aac ctg aag gag gtt	aaa ata	7377
Thr Met Arg	Thr Gly Leu Gly Val	Asn Leu Lys Glu Val	Lys Ile	
2160	2165	2170		
ttt aac cga	gta aga gag aaa ggg	acc aat gtt tgt gcc	agg gac	7422
Phe Asn Arg	Val Arg Glu Lys Gly	Thr Asn Val Cys Ala	Arg Asp	
2175	2180	2185		
aat ggt ggc	tgt aag caa ctc tgt	ctt tat cga gga aat	tcc cgg	7467
Asn Gly Gly	Cys Lys Gln Leu Cys	Leu Tyr Arg Gly Asn	Ser Arg	
2190	2195	2200		
aga act tgt	gct tgt gcc cat gga	tat ttg gca gaa gat	gga gtt	7512
Arg Thr Cys	Ala Cys Ala His Gly	Tyr Leu Ala Glu Asp	Gly Val	
2205	2210	2215		
act tgc ctg	agg cat gaa ggc tat	tta ctg tat tca gga	aga aca	7557
Thr Cys Leu	Arg His Glu Gly Tyr	Leu Leu Tyr Ser Gly	Arg Thr	
2220	2225	2230		
ata tta aaa	agt ata cat ctt tct	gat gaa acc aat tta	aat tcc	7602
Ile Leu Lys	Ser Ile His Leu Ser	Asp Glu Thr Asn Leu	Asn Ser	
2235	2240	2245		
cca ata agg	cca tat gag aat cca	cgt tat ttc aag aat	gtc ata	7647
Pro Ile Arg	Pro Tyr Glu Asn Pro	Arg Tyr Phe Lys Asn	Val Ile	
2250	2255	2260		
gcc ttg gct	ttt gac tat aat caa	aga aga aaa ggt acc	aac cga	7692
Ala Leu Ala	Phe Asp Tyr Asn Gln	Arg Arg Lys Gly Thr	Asn Arg	
2265	2270	2275		
atc ttt tac	agt gat gca cac ttt	gga aat ata cag ctt	att aaa	7737
Ile Phe Tyr	Ser Asp Ala His Phe	Gly Asn Ile Gln Leu	Ile Lys	
2280	2285	2290		
gac aac tgg	gaa gac aga caa gta	att gtt gaa aat gtg	ggg tct	7782
Asp Asn Trp	Glu Asp Arg Gln Val	Ile Val Glu Asn Val	Gly Ser	
2295	2300	2305		
gtg gaa gga	ctt gcc tat cac aga	gcc tgg gat aca ctg	tac tgg	7827
Val Glu Gly	Leu Ala Tyr His Arg	Ala Trp Asp Thr Leu	Tyr Trp	
2310	2315	2320		
aca agc tct	acc acc tca tcc atc	acc aga cac act gtg	gac cag	7872
Thr Ser Ser	Thr Thr Ser Ser Ile	Thr Arg His Thr Val	Asp Gln	
2325	2330	2335		

act cgg cct gga gca ttt gac agg gaa gct gtc atc acc atg tca	7917
Thr Arg Pro Gly Ala Phe Asp Arg Glu Ala Val Ile Thr Met Ser	
2340 2345 2350	
gaa gat gac cat cca cat gtg cta gcc ttg gat gaa tgt caa aat	7962
Glu Asp Asp His Pro His Val Leu Ala Leu Asp Glu Cys Gln Asn	
2355 2360 2365	
tta atg ttt tgg acc aac tgg aat gaa caa cat cca agt atc atg	8007
Leu Met Phe Trp Thr Asn Trp Asn Glu Gln His Pro Ser Ile Met	
2370 2375 2380	
aga tct act ctg act ggg aaa aat gct caa gtg gtg gtc agt aca	8052
Arg Ser Thr Leu Thr Gly Lys Asn Ala Gln Val Val Val Ser Thr	
2385 2390 2395	
gac ata ctc act cca aat gga ctt act atc gac tac cgt gca gag	8097
Asp Ile Leu Thr Pro Asn Gly Leu Thr Ile Asp Tyr Arg Ala Glu	
2400 2405 2410	
aag ctg tat ttc tca gat ggc agt cta gga aaa att gaa agg tgt	8142
Lys Leu Tyr Phe Ser Asp Gly Ser Leu Gly Lys Ile Glu Arg Cys	
2415 2420 2425	
gaa tac gat gga tcc cag aga cat gtg ata gtt aaa tct ggg cca	8187
Glu Tyr Asp Gly Ser Gln Arg His Val Ile Val Lys Ser Gly Pro	
2430 2435 2440	
ggg act ttc ctc agt ttg gct gtt tat gac aat tat ata ttc tgg	8232
Gly Thr Phe Leu Ser Leu Ala Val Tyr Asp Asn Tyr Ile Phe Trp	
2445 2450 2455	
tcg gac tgg gga aga aga gct ata ctg cgg tcc aac aag tac aca	8277
Ser Asp Trp Gly Arg Arg Ala Ile Leu Arg Ser Asn Lys Tyr Thr	
2460 2465 2470	
gga gga gat aca aaa att ctt cgt tcc gat att cca cat cag cca	8322
Gly Gly Asp Thr Lys Ile Leu Arg Ser Asp Ile Pro His Gln Pro	
2475 2480 2485	
atg gga atc ata gct gtt gcc aat gac acc aat agc tgt gaa ctt	8367
Met Gly Ile Ile Ala Val Ala Asn Asp Thr Asn Ser Cys Glu Leu	
2490 2495 2500	
tct cca tgt gca tta ttg aat gga ggc tgc cat gac ttg tgc ctt	8412
Ser Pro Cys Ala Leu Leu Asn Gly Gly Cys His Asp Leu Cys Leu	
2505 2510 2515	
tta act ccc aat ggg aga gtg aat tgt tcc tgc aga ggg gac cga	8457
Leu Thr Pro Asn Gly Arg Val Asn Cys Ser Cys Arg Gly Asp Arg	
2520 2525 2530	
ata ttg cta gag gac aac aga tgt gtg act aaa aat tcc tcc tgc	8502
Ile Leu Leu Glu Asp Asn Arg Cys Val Thr Lys Asn Ser Ser Cys	
2535 2540 2545	
aac gct tat tcg gag ttt gaa tgt gga aat ggt gag tgc att gac	8547
Asn Ala Tyr Ser Glu Phe Glu Cys Gly Asn Gly Glu Cys Ile Asp	
2550 2555 2560	
tac cag ctc acc tgt gat ggc att cct cac tgt aaa gat aaa tca	8592
Tyr Gln Leu Thr Cys Asp Gly Ile Pro His Cys Lys Asp Lys Ser	
2565 2570 2575	

gat gaa aaa ctg ctc tac tgt gaa aac aga agc tgt cga aga ggc Asp Glu Lys Leu Leu Tyr Cys Glu Asn Arg Ser Cys Arg Arg Gly 2580 2585 2590	8637
ttc aag cca tgc tat aat cgc cgc tgc att cct cat ggc aag tta Phe Lys Pro Cys Tyr Asn Arg Arg Cys Ile Pro His Gly Lys Leu 2595 2600 2605	8682
tgt gat gga gaa aat gac tgc gga gac aac tct gat gaa tta gat Cys Asp Gly Glu Asn Asp Cys Gly Asp Asn Ser Asp Glu Leu Asp 2610 2615 2620	8727
tgt aaa gtt tca acc tgt gcc acg gtt gag ttc cgc tgt gca gat Cys Lys Val Ser Thr Cys Ala Thr Val Glu Phe Arg Cys Ala Asp 2625 2630 2635	8772
ggg act tgt att cca aga tca gca cga tgc aac cag aac ata gat Gly Thr Cys Ile Pro Arg Ser Ala Arg Cys Asn Gln Asn Ile Asp 2640 2645 2650	8817
tgt gca gat gct tca gat gaa aag aac tgc aat aac aca gac tgc Cys Ala Asp Ala Ser Asp Glu Lys Asn Cys Asn Asn Thr Asp Cys 2655 2660 2665	8862
aca cat ttc tat aag ctt gga gtg aaa acc aca ggg ttc ata aga Thr His Phe Tyr Lys Leu Gly Val Lys Thr Thr Gly Phe Ile Arg 2670 2675 2680	8907
tgt aat tct acc tca ctg tgt gtt ctg cca acc tgg ata tgc gac Cys Asn Ser Thr Ser Leu Cys Val Leu Pro Thr Trp Ile Cys Asp 2685 2690 2695	8952
ggg tct aat gac tgt gga gac tat tca gat gaa tta aag tgc cca Gly Ser Asn Asp Cys Gly Asp Tyr Ser Asp Glu Leu Lys Cys Pro 2700 2705 2710	8997
gtt cag aac aaa cac aaa tgt gaa gaa aat tat ttt agt tgt cct Val Gln Asn Lys His Lys Cys Glu Glu Asn Tyr Phe Ser Cys Pro 2715 2720 2725	9042
agt gga aga tgc att ttg aat acc tgg ata tgc gat ggt cag aaa Ser Gly Arg Cys Ile Leu Asn Thr Trp Ile Cys Asp Gly Gln Lys 2730 2735 2740	9087
gat tgt gag gat gga cgt gat gaa ttc cac tgt gat tct tct tgc Asp Cys Glu Asp Gly Arg Asp Glu Phe His Cys Asp Ser Ser Cys 2745 2750 2755	9132
tct tgg aac caa ttt gct tgt tcc gca caa aaa tgt att tct aag Ser Trp Asn Gln Phe Ala Cys Ser Ala Gln Lys Cys Ile Ser Lys 2760 2765 2770	9177
cat tgg att tgt gat gga gaa gat gac tgt ggg gat ggg tta gat His Trp Ile Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly Leu Asp 2775 2780 2785	9222
gaa agt gac agc att tgt ggt gcc ata acc tgt gct gct gac atg Glu Ser Asp Ser Ile Cys Gly Ala Ile Thr Cys Ala Ala Asp Met 2790 2795 2800	9267
ttc agc tgc cag ggc tct cgt gcc tgc gtg ccc cga cat tgg ctt Phe Ser Cys Gln Gly Ser Arg Ala Cys Val Pro Arg His Trp Leu 2805 2810 2815	9312

tgt gat ggt gaa agg gac tgt cca gat gga agc gat gag ctt tcc Cys Asp Gly Glu Arg Asp Cys Pro Asp Gly Ser Asp Glu Leu Ser 2820 2825 2830	9357
aca gca ggc tgc gct ccc aat aat aca tgt gat gaa aat gct ttc Thr Ala Gly Cys Ala Pro Asn Asn Thr Cys Asp Glu Asn Ala Phe 2835 2840 2845	9402
atg tgc cat aat aaa gta tgc att ccc aag caa ttt gtt tgt gac Met Cys His Asn Lys Val Cys Ile Pro Lys Gln Phe Val Cys Asp 2850 2855 2860	9447
cat gat gac gac tgt gga gat ggc tct gat gag tca ccg cag tgt His Asp Asp Asp Cys Gly Asp Gly Ser Asp Glu Ser Pro Gln Cys 2865 2870 2875	9492
gga tac cga cag tgt ggt aca gaa gaa ttt agt tgt gct gat ggg Gly Tyr Arg Gln Cys Gly Thr Glu Glu Phe Ser Cys Ala Asp Gly 2880 2885 2890	9537
cgg tgt ctt cta aat act caa tgg cag tgt gat gga gac ttt gac Arg Cys Leu Leu Asn Thr Gln Trp Gln Cys Asp Gly Asp Phe Asp 2895 2900 2905	9582
tgt cct gac cat tct gat gaa gca cct tta aac cca aag tgt aaa Cys Pro Asp His Ser Asp Glu Ala Pro Leu Asn Pro Lys Cys Lys 2910 2915 2920	9627
agt gca gaa cag tca tgc aac agt tca ttt ttt atg tgc aaa aat Ser Ala Glu Gln Ser Cys Asn Ser Ser Phe Phe Met Cys Lys Asn 2925 2930 2935	9672
ggc agg tgc att ccc agt gga ggt ctt tgt gac aat aag gat gac Gly Arg Cys Ile Pro Ser Gly Gly Leu Cys Asp Asn Lys Asp Asp 2940 2945 2950	9717
tgt ggc gat ggt tca gat gag aga aac tgc cat ata aat gaa tgt Cys Gly Asp Gly Ser Asp Glu Arg Asn Cys His Ile Asn Glu Cys 2955 2960 2965	9762
ttg agt aag aaa gtc agt gga tgt tct caa gat tgt caa gac ctt Leu Ser Lys Lys Val Ser Gly Cys Ser Gln Asp Cys Gln Asp Leu 2970 2975 2980	9807
ccg gtc agt tat aag tgc aaa tgc tgg cct gga ttc caa ctg aag Pro Val Ser Tyr Lys Cys Lys Cys Trp Pro Gly Phe Gln Leu Lys 2985 2990 2995	9852
gat gac ggc aaa aca tgt gta gac att gat gaa tgc tct tca ggc Asp Asp Gly Lys Thr Cys Val Asp Ile Asp Glu Cys Ser Ser Gly 3000 3005 3010	9897
ttt ccc tgt agc cag caa tgc atc aat aca tac ggg act tac aag Phe Pro Cys Ser Gln Gln Cys Ile Asn Thr Tyr Gly Thr Tyr Lys 3015 3020 3025	9942
tgc ctc tgt aca gat ggg tat gaa ata caa cct gat aac cca aat Cys Leu Cys Thr Asp Gly Tyr Glu Ile Gln Pro Asp Asn Pro Asn 3030 3035 3040	9987
ggc tgc aaa tcg ctc tca gat gaa gaa cct ttt tta att ctt gct Gly Cys Lys Ser Leu Ser Asp Glu Glu Pro Phe Leu Ile Leu Ala 3045 3050 3055	10032

gat cat cat gag ata agg aaa att agc act gat ggc tcc aac tac	10077
Asp His His Glu Ile Arg Lys Ile Ser Thr Asp Gly Ser Asn Tyr	
3060 3065 3070	
aca ctt tta aaa cag gga tta aac aat gtt att gct ata gac ttt	10122
Thr Leu Leu Lys Gln Gly Leu Asn Asn Val Ile Ala Ile Asp Phe	
3075 3080 3085	
gat tac aga gaa gaa ttc atc tat tgg atc gat tct agc cga ccc	10167
Asp Tyr Arg Glu Glu Phe Ile Tyr Trp Ile Asp Ser Ser Arg Pro	
3090 3095 3100	
aat ggc agt cgc ata aat aga atg tgt tta aat gga agt gac att	10212
Asn Gly Ser Arg Ile Asn Arg Met Cys Leu Asn Gly Ser Asp Ile	
3105 3110 3115	
aag gta gtt cat aac aca gcg gtc ccc aat gca ctt gct gtc gat	10257
Lys Val Val His Asn Thr Ala Val Pro Asn Ala Leu Ala Val Asp	
3120 3125 3130	
tgg att gga aaa aac ctc tat tgg tct gac aca gaa aaa aga atc	10302
Trp Ile Gly Lys Asn Leu Tyr Trp Ser Asp Thr Glu Lys Arg Ile	
3135 3140 3145	
att gaa gta tcc aaa ctc aat ggc ttg tac cct act ata ctc gtt	10347
Ile Glu Val Ser Lys Leu Asn Gly Leu Tyr Pro Thr Ile Leu Val	
3150 3155 3160	
agc aaa agg ctg aag ttt ccc aga gac ttg tct tta gat cct caa	10392
Ser Lys Arg Leu Lys Phe Pro Arg Asp Leu Ser Leu Asp Pro Gln	
3165 3170 3175	
gct gga tat ttg tat tgg att gac tgc tgc gag tat cct cat att	10437
Ala Gly Tyr Leu Tyr Trp Ile Asp Cys Cys Glu Tyr Pro His Ile	
3180 3185 3190	
ggc cgt gtt gga atg gat gga acc aat cag agt gtt gtc ata gaa	10482
Gly Arg Val Gly Met Asp Gly Thr Asn Gln Ser Val Val Ile Glu	
3195 3200 3205	
acc aag att tct aga cct atg gca cta aca ata gat tat gtt aat	10527
Thr Lys Ile Ser Arg Pro Met Ala Leu Thr Ile Asp Tyr Val Asn	
3210 3215 3220	
cgt aga ctc tac tgg gcc gat gaa aat cac att gaa ttt agc aac	10572
Arg Arg Leu Tyr Trp Ala Asp Glu Asn His Ile Glu Phe Ser Asn	
3225 3230 3235	
atg gat gga tct cat aga cac aaa gtc cct aat caa gat att cca	10617
Met Asp Gly Ser His Arg His Lys Val Pro Asn Gln Asp Ile Pro	
3240 3245 3250	
ggg gtg att gca cta aca ttg ttt gaa gac tac atc tac tgg act	10662
Gly Val Ile Ala Leu Thr Leu Phe Glu Asp Tyr Ile Tyr Trp Thr	
3255 3260 3265	
gat ggg aaa acc aag tca ctc agc cgt gcc cat aaa aca tcg gga	10707
Asp Gly Lys Thr Lys Ser Leu Ser Arg Ala His Lys Thr Ser Gly	
3270 3275 3280	
gca gac aga ctc tca ctg att tac tca tgg cat gcc atc aca gat	10752
Ala Asp Arg Leu Ser Leu Ile Tyr Ser Trp His Ala Ile Thr Asp	
3285 3290 3295	

3060 3065 3070 3075 3080 3085 3090 3095 3100 3105 3110 3115 3120 3125 3130 3135 3140 3145 3150 3155 3160 3165 3170 3175 3180 3185 3190 3195 3200 3205 3210 3215 3220 3225 3230 3235 3240 3245 3250 3255 3260 3265 3270 3275 3280 3285 3290 3295

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Ile Gln Val Tyr His Ser Tyr Arg Gln Pro Asp Val Ser Lys His	
3300 3305 3310	
ctc tgc atg ata aat aat ggt ggt tgc agt cat ttg tgc ctt tta	10842
Leu Cys Met Ile Asn Asn Gly Gly Cys Ser His Leu Cys Leu Leu	
3315 3320 3325	
gcc cct gga aaa acc cac act tgt gca tgt ccc act aac ttc tat	10867
Ala Pro Gly Lys Thr His Thr Cys Ala Cys Pro Thr Asn Phe Tyr	
3330 3335 3340	
ctg gca gct gat aat agg act tgc tta tcc aac tgc aca gcc agc	10932
Leu Ala Ala Asp Asn Arg Thr Cys Leu Ser Asn Cys Thr Ala Ser	
3345 3350 3355	
cag ttt cgt tgc aaa act gac aaa tgt att cca ttc tgg tgg aaa	10977
Gln Phe Arg Cys Lys Thr Asp Lys Cys Ile Pro Phe Trp Trp Lys	
3360 3365 3370	
tgt gac acc gtg gat gac tgt ggt gat gga tct gat gaa cct gat	11022
Cys Asp Thr Val Asp Asp Cys Gly Asp Gly Ser Asp Glu Pro Asp	
3375 3380 3385	
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Asp Cys Pro Glu Phe Arg Cys Gln Pro Gly Arg Phe Gln Cys Gly	
3390 3395 3400	
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Thr Gly Leu Cys Ala Leu Pro Ala Phe Ile Cys Asp Gly Glu Asn	
3405 3410 3415	
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Asp Cys Gly Asp Asn Ser Asp Glu Leu Asn Cys Asp Thr His Val	
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Cys Leu Ser Gly Gln Phe Lys Cys Thr Lys Asn Gln Lys Cys Ile	
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Pro Val Asn Leu Arg Cys Asn Gly Gln Asp Asp Cys Gly Asp Glu	
3450 3455 3460	
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Glu Asp Glu Arg Asp Cys Pro Glu Asn Ser Cys Ser Pro Asp Tyr	
3465 3470 3475	
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Phe Gln Cys Lys Thr Thr Lys His Cys Ile Ser Lys Leu Trp Val	
3480 3485 3490	
tgt gac gag gat cca gac tgt gca gat gca tca gac gag gcc aac	11382
Cys Asp Glu Asp Pro Asp Cys Ala Asp Ala Ser Asp Glu Ala Asn	
3495 3500 3505	
tgc gat aaa aag act tgt gga cct cat gaa ttc cag tgt aaa aac	11427
Cys Asp Lys Lys Thr Cys Gly Pro His Glu Phe Gln Cys Lys Asn	
3510 3515 3520	
aac aac tgt att ccc gat cac tgg cgg tgt gat agc caa aat gac	11472
Asn Asn Cys Ile Pro Asp His Trp Arg Cys Asp Ser Gln Asn Asp	
3525 3530 3535	

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Cys Ser Asp Asn Ser Asp Glu Glu Asn Cys Lys Pro Gln Thr Cys	
3540 3545 3550	
aca ttg aaa gat ttc ctc tgt gcc aat ggg gac tgt gtt tct tca	11562
Thr Leu Lys Asp Phe Leu Cys Ala Asn Gly Asp Cys Val Ser Ser	
3555 3560 3565	
agg ttt tgg tgt gat gga gat ttt gac tgt gca gat ggc tct gat	11607
Arg Phe Trp Cys Asp Gly Asp Phe Asp Cys Ala Asp Gly Ser Asp	
3570 3575 3580	
gag aga aat tgt gag aca agt tgt tcc aaa gat cag ttc cgg tgt	11652
Glu Arg Asn Cys Glu Thr Ser Cys Ser Lys Asp Gln Phe Arg Cys	
3585 3590 3595	
tcc aat ggt cag tgt ata cca gca aaa tgg aaa tgt gat ggc cat	11697
Ser Asn Gly Gln Cys Ile Pro Ala Lys Trp Lys Cys Asp Gly His	
3600 3605 3610	
gaa gac tgc aaa tat ggg gaa gat gag aaa agc tgt gag cca gct	11742
Glu Asp Cys Lys Tyr Gly Glu Asp Glu Lys Ser Cys Glu Pro Ala	
3615 3620 3625	
tct cct act tgc tca tca cgt gaa tat ata tgt gcc agt gat gga	11787
Ser Pro Thr Cys Ser Ser Arg Glu Tyr Ile Cys Ala Ser Asp Gly	
3630 3635 3640	
tgt att tca gca tct ttg aaa tgt aat gga gaa tat gat tgt gct	11832
Cys Ile Ser Ala Ser Leu Lys Cys Asn Gly Glu Tyr Asp Cys Ala	
3645 3650 3655	
gat ggt tca gat gag atg gac tgt gtg act gaa tgt aag gaa gat	11877
Asp Gly Ser Asp Glu Met Asp Cys Val Thr Glu Cys Lys Glu Asp	
3660 3665 3670	
cag ttt cgg tgc aaa aat aaa gcc cac tgt att cca att aga tgg	11922
Gln Phe Arg Cys Lys Asn Lys Ala His Cys Ile Pro Ile Arg Trp	
3675 3680 3685	
ctg tgt gat gga att cat gac tgt gtg gat ggc agt gat gaa gag	11967
Leu Cys Asp Gly Ile His Asp Cys Val Asp Gly Ser Asp Glu Glu	
3690 3695 3700	
aac tgt gaa aga gga gga aat ata tgt aga gct gat gag ttc ctt	12012
Asn Cys Glu Arg Gly Gly Asn Ile Cys Arg Ala Asp Glu Phe Leu	
3705 3710 3715	
tgc aat aat tct ctc tgc aaa cta cat ttc tgg gtg tgt gat gga	12057
Cys Asn Asn Ser Leu Cys Lys Leu His Phe Trp Val Cys Asp Gly	
3720 3725 3730	
gag gac gac tgt gga gac aac tct gat gaa gcc cct gat atg tgt	12102
Glu Asp Asp Cys Gly Asp Asn Ser Asp Glu Ala Pro Asp Met Cys	
3735 3740 3745	
gtc aaa ttt ctt tgt cca tcc acg aga cct cac aga tgc aga aat	12147
Val Lys Phe Leu Cys Pro Ser Thr Arg Pro His Arg Cys Arg Asn	
3750 3755 3760	
aac aga ata tgc cta cag tcg gag caa atg tgc aat ggg att gat	12192
Asn Arg Ile Cys Leu Gln Ser Glu Gln Met Cys Asn Gly Ile Asp	
3765 3770 3775	

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Glu Cys Gly	Asp Asn Ser Asp	Glu Asp His Cys Gly Gly	Lys Leu	
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aca tat aaa	gca agg cct tgt	aaa aag gat gag ttt gct	tgt agt	12282
Thr Tyr Lys	Ala Arg Pro Cys	Lys Lys Asp Glu Phe Ala	Cys Ser	
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Asn Lys Lys	Cys Ile Pro Met	Asp Leu Gln Cys Asp	Leu Asp	
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Asp Cys Gly	Asp Gly Ser Asp	Glu Gln Gly Cys Arg	Ile Ala Pro	
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Ala Tyr Cys	Asn Gln Ile Lys	Thr Ser Val Phe Cys	Arg Cys Lys	
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Pro Gly Phe	Gln Arg Asn Met	Lys Asn Arg Gln Cys	Glu Asp Leu	
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Tyr Ile Ala	Asn Asp Thr Asp	Ile Leu Gly Phe Ile	Tyr Pro Phe	
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Ile His Gly	Arg Glu Lys Arg	Gln Ala Asn Ser Gly	Leu Ile Cys	
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cct gaa ttt	aaa agg ccc agg	gac att gca gtt gac	tgg gtg gct	12912
Pro Glu Phe	Lys Arg Pro Arg	Asp Ile Ala Val Asp	Trp Val Ala	
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Gly Ser Leu Glu Cys Val Cys Pro Thr Arg Tyr Glu Gly Pro Lys	
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<211> 4636
<212> PRT
<213> Homo sapiens

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<400> 33

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1          5          10          15

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Ala Ala Gly Pro Lys Val Pro Pro Ser Ser Leu Gln Arg Arg Leu Pro
          20          25          30

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Tyr Arg Ala Thr Thr Met Ser Glu Phe Leu Leu Ala Leu Leu Thr Leu
          35          40          45

```

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Ser Gly Leu Leu Pro Ile Ala Arg Val Leu Thr Val Gly Ala Asp Arg
          50          55          60

```

```

Asp Gln Gln Leu Cys Asp Pro Gly Glu Phe Leu Cys His Asp His Val
65          70          75          80

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Thr Cys Val Ser Arg Ser Trp Leu Cys Asp Gly Asp Pro Asp Cys Pro

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85	90	95
Asp Asp Ser Asp Glu Ser Leu Asp Thr Cys Pro Glu Glu Val Glu Ile 100 105 110		
Lys Cys Pro Leu Asn His Ile Ala Cys Leu Gly Thr Asn Lys Cys Val 115 120 125		
His Leu Ser Gln Leu Cys Asn Gly Val Leu Asp Cys Pro Asp Gly Tyr 130 135 140		
Asp Glu Gly Val His Cys Gln Glu Leu Leu Ser Asn Cys Gln Gln Leu 145 150 155 160		
Asn Cys Gln Tyr Lys Cys Thr Met Val Arg Asn Ser Thr Arg Cys Tyr 165 170 175		
Cys Glu Asp Gly Phe Glu Ile Thr Glu Asp Gly Arg Ser Cys Lys Asp 180 185 190		
Gln Asp Glu Cys Ala Val Tyr Gly Thr Cys Ser Gln Thr Cys Arg Asn 195 200 205		
Thr His Gly Ser Tyr Thr Cys Ser Cys Val Glu Gly Tyr Leu Met Gln 210 215 220		
Pro Asp Asn Arg Ser Cys Lys Ala Lys Ile Glu Pro Thr Asp Arg Pro 225 230 235 240		
Pro Ile Leu Leu Ile Ala Asn Phe Glu Thr Ile Glu Val Phe Tyr Leu 245 250 255		
Asn Gly Ser Lys Met Ala Thr Leu Ser Ser Val Asn Gly Asn Glu Ile 260 265 270		
His Thr Leu Asp Phe Ile Tyr Asn Glu Asp Val Ile Cys Trp Ile Glu 275 280 285		
Ser Arg Glu Ser Ser Asn Gln Leu Lys Cys Ile Gln Ile Thr Lys Ala 290 295 300		
Gly Gly Leu Thr Asp Glu Trp Thr Ile Asn Ile Leu Gln Ser Phe His 305 310 315 320		
Asn Val Gln Gln Met Ala Ile Asp Trp Leu Thr Arg Asn Leu Tyr Phe 325 330 335		

Val Asp His Val Gly Asp Arg Ile Phe Val Cys Asn Ser Asn Gly Ser
340 345 350

Val Cys Val Thr Leu Ile Asp Leu Glu Leu His Asn Pro Lys Ala Ile
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Ala Val Asp Pro Ile Ala Gly Lys Leu Phe Phe Thr Asp Tyr Gly Asn
370 375 380

Val Ala Lys Val Glu Arg Cys Asp Met Asp Gly Met Asn Arg Thr Arg
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Ile Ile Asp Ser Lys Thr Glu Gln Pro Ala Ala Leu Ala Leu Asp Leu
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Val Asn Lys Leu Val Tyr Trp Val Asp Leu Tyr Leu Asp Tyr Val Gly
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Val Val Asp Tyr Gln Gly Lys Asn Arg His Thr Val Ile Gln Gly Arg
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Gln Val Arg His Leu Tyr Gly Ile Thr Val Phe Glu Asp Tyr Leu Tyr
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Arg Ile Tyr Gln Lys Arg Thr Gln Pro Thr Val Arg Ser His Ala Cys
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Phe Leu Phe Tyr Gly Lys Gly Arg Pro Gly Ile Val Arg Gly Met Asp
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Leu Asn Thr Lys Ile Ala Asp Glu Tyr Met Ile Pro Ile Glu Asn Leu
580 585 590

Val Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Asn Tyr Ile Tyr
595 600 605

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610 615 620

Thr Glu Arg Glu Thr Ile Leu Lys Asp Asp Leu Asp Asn Val Glu Gly
625 630 635 640

Ile Ala Val Asp Trp Ile Gly Asn Asn Leu Tyr Trp Thr Asn Asp Gly
645 650 655

His Arg Lys Thr Ile Asn Val Ala Arg Leu Glu Lys Ala Ser Gln Ser
660 665 670

Arg Lys Thr Leu Leu Glu Gly Glu Met Ser His Pro Arg Gly Ile Val
675 680 685

Val Asp Pro Ile Asn Gly Trp Met Tyr Trp Thr Asp Trp Glu Glu Asp
690 695 700

Glu Ile Asp Asp Ser Val Gly Arg Ile Glu Lys Ala Trp Met Asp Gly
705 710 715 720

Phe Asn Arg Gln Ile Phe Val Thr Ser Lys Met Leu Trp Pro Asn Gly
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Leu Thr Leu Asp Phe His Thr Asn Thr Leu Tyr Trp Cys Asp Ala Tyr
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Tyr Asp His Ile Glu Lys Val Phe Leu Asn Gly Thr His Arg Lys Ile
755 760 765

Val Tyr Ser Gly Arg Glu Leu Asn His Pro Phe Gly Leu Ser His His
770 775 780

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Leu Asp Leu Ile Thr Ser Glu Val Thr Leu Leu Arg His Glu Arg Pro
805 810 815

Pro Leu Phe Gly Leu Gln Ile Tyr Asp Pro Arg Lys Gln Gln Gly Asp
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Asn Met Cys Arg Val Asn Asn Gly Gly Cys Ser Thr Leu Cys Leu Ala
835 840 845

Ile Pro Gly Gly Arg Val Cys Ala Cys Ala Asp Asn Gln Leu Leu Asp
850 855 860

Glu Asn Gly Thr Thr Cys Thr Phe Asn Pro Gly Glu Ala Leu Pro His
865 870 875 880

Ile Cys Lys Ala Gly Glu Phe Arg Cys Lys Asn Arg His Cys Ile Gln
885 890 895

Ala Arg Trp Lys Cys Asp Gly Asp Asp Asp Cys Leu Asp Gly Ser Asp
900 905 910

Glu Asp Ser Val Asn Cys Phe Asn His Ser Cys Pro Asp Asp Gln Phe
915 920 925

Lys Cys Gln Asn Asn Arg Cys Ile Pro Lys Arg Trp Leu Cys Asp Gly
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Thr Asp Glu Met Ala Ser Cys Glu Phe Pro Thr Cys Glu Pro Leu Thr
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Ala Ser	Met Ser Gly Ala	Gly	Arg Lys Thr Ile	Tyr Lys Asp Met
1445		1450		1455
Lys Thr	Gly Ala Trp Pro	Asn	Gly Leu Thr Val	Asp His Phe Glu
1460		1465		1470
Lys Arg	Ile Val Trp Thr	Asp	Ala Arg Ser Asp	Ala Ile Tyr Ser
1475		1480		1485
Ala Leu	Tyr Asp Gly Thr	Asn	Met Ile Glu Ile	Ile Arg Gly His
1490		1495		1500
Glu Tyr	Leu Ser His Pro	Phe	Ala Val Ser Leu	Tyr Gly Ser Glu
1505		1510		1515
Val Tyr	Trp Thr Asp Trp	Arg	Thr Asn Thr Leu	Ser Lys Ala Asn
1520		1525		1530
Lys Trp	Thr Gly Gln Asn	Val	Ser Val Ile Gln	Lys Thr Ser Ala
1535		1540		1545
Gln Pro	Phe Asp Leu Gln	Ile	Tyr His Pro Ser	Arg Gln Pro Gln
1550		1555		1560
Ala Pro	Asn Pro Cys Ala	Ala	Asn Asp Gly Lys	Gly Pro Cys Ser
1565		1570		1575

His Met Cys Leu Ile Asn His Asn Arg Ser Ala Ala Cys Ala Cys
1580 1585 1590

Pro His Leu Met Lys Leu Ser Ser Asp Lys Lys Thr Cys Tyr Glu
1595 1600 1605

Met Lys Lys Phe Leu Leu Tyr Ala Arg Arg Ser Glu Ile Arg Gly
1610 1615 1620

Val Asp Ile Asp Asn Pro Tyr Phe Asn Phe Ile Thr Ala Phe Thr
1625 1630 1635

Val Pro Asp Ile Asp Asp Val Thr Val Ile Asp Phe Asp Ala Ser
1640 1645 1650

Glu Glu Arg Leu Tyr Trp Thr Asp Ile Lys Thr Gln Thr Ile Lys
1655 1660 1665

Arg Ala Phe Ile Asn Gly Thr Gly Leu Glu Thr Val Ile Ser Arg
1670 1675 1680

Asp Ile Gln Ser Ile Arg Gly Leu Ala Val Asp Trp Val Ser Arg
1685 1690 1695

Asn Leu Tyr Trp Ile Ser Ser Glu Phe Asp Glu Thr Gln Ile Asn
1700 1705 1710

Val Ala Arg Leu Asp Gly Ser Leu Lys Thr Ser Ile Ile His Gly
1715 1720 1725

Ile Asp Lys Pro Gln Cys Leu Ala Ala His Pro Val Arg Gly Lys
1730 1735 1740

Leu Tyr Trp Thr Asp Gly Asn Thr Ile Asn Met Ala Asn Met Asp
1745 1750 1755

Gly Ser Asn Ser Lys Ile Leu Phe Gln Asn Gln Lys Glu Pro Val
1760 1765 1770

Gly Leu Ser Ile Asp Tyr Val Glu Asn Lys Leu Tyr Trp Ile Ser
1775 1780 1785

Ser Gly Asn Gly Thr Ile Asn Arg Cys Asn Leu Asp Gly Gly Asn
1790 1795 1800

Leu Glu Val Ile Glu Ser Met Lys Glu Glu Leu Thr Lys Ala Thr
1805 1810 1815

Ala	Leu	Thr	Ile	Met	Asp	Lys	Lys	Leu	Trp	Trp	Ala	Asp	Gln	Asn
1820						1825					1830			
Leu	Ala	Gln	Leu	Gly	Thr	Cys	Ser	Lys	Arg	Asp	Gly	Arg	Asn	Pro
1835						1840					1845			
Thr	Ile	Leu	Arg	Asn	Lys	Thr	Ser	Gly	Val	Val	His	Met	Lys	Val
1850						1855					1860			
Tyr	Asp	Lys	Glu	Ala	Gln	Gln	Gly	Ser	Asn	Ser	Cys	Gln	Leu	Asn
1865						1870					1875			
Asn	Gly	Gly	Cys	Ser	Gln	Leu	Cys	Leu	Pro	Thr	Ser	Glu	Thr	Thr
1880						1885					1890			
Arg	Thr	Cys	Met	Cys	Thr	Val	Gly	Tyr	Tyr	Leu	Gln	Lys	Asn	Arg
1895						1900					1905			
Met	Ser	Cys	Gln	Gly	Ile	Glu	Ser	Phe	Leu	Met	Tyr	Ser	Val	His
1910						1915					1920			
Glu	Gly	Ile	Arg	Gly	Ile	Pro	Leu	Glu	Pro	Ser	Asp	Lys	Met	Asp
1925						1930					1935			
Ala	Leu	Met	Pro	Ile	Ser	Gly	Thr	Ser	Phe	Ala	Val	Gly	Ile	Asp
1940						1945					1950			
Phe	His	Ala	Glu	Asn	Asp	Thr	Ile	Tyr	Trp	Thr	Asp	Met	Gly	Phe
1955						1960					1965			
Asn	Lys	Ile	Ser	Arg	Ala	Lys	Arg	Asp	Gln	Thr	Trp	Lys	Glu	Asp
1970						1975					1980			
Ile	Ile	Thr	Asn	Gly	Leu	Gly	Arg	Val	Glu	Gly	Ile	Ala	Val	Asp
1985						1990					1995			
Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Thr	Asp	His	Gly	Phe	Asn	Leu
2000						2005					2010			
Ile	Glu	Val	Ala	Arg	Leu	Asn	Gly	Ser	Phe	Arg	Tyr	Val	Ile	Ile
2015						2020					2025			
Ser	Gln	Gly	Leu	Asp	Gln	Pro	Arg	Ser	Ile	Ala	Val	His	Pro	Glu
2030						2035					2040			
Lys	Gly	Leu	Leu	Phe	Trp	Thr	Glu	Trp	Gly	Gln	Met	Pro	Cys	Ile
2045						2050					2055			

1820 1835 1850 1865 1880 1895 1910 1925 1940 1955 1970 1985 2000 2015 2030 2045

Gly	Lys	Ala	Arg	Leu	Asp	Gly	Ser	Glu	Lys	Val	Val	Leu	Val	Ser
2060						2065					2070			
Met	Gly	Ile	Ala	Trp	Pro	Asn	Gly	Ile	Ser	Ile	Asp	Tyr	Glu	Glu
2075						2080					2085			
Asn	Lys	Leu	Tyr	Trp	Cys	Asp	Ala	Arg	Thr	Asp	Lys	Ile	Glu	Arg
2090						2095					2100			
Ile	Asp	Leu	Glu	Thr	Gly	Gly	Asn	Arg	Glu	Met	Val	Leu	Ser	Gly
2105						2110					2115			
Ser	Asn	Val	Asp	Met	Phe	Ser	Val	Ala	Val	Phe	Gly	Ala	Tyr	Ile
2120						2125					2130			
Tyr	Trp	Ser	Asp	Arg	Ala	His	Ala	Asn	Gly	Ser	Val	Arg	Arg	Gly
2135						2140					2145			
His	Lys	Asn	Asp	Ala	Thr	Glu	Thr	Ile	Thr	Met	Arg	Thr	Gly	Leu
2150						2155					2160			
Gly	Val	Asn	Leu	Lys	Glu	Val	Lys	Ile	Phe	Asn	Arg	Val	Arg	Glu
2165						2170					2175			
Lys	Gly	Thr	Asn	Val	Cys	Ala	Arg	Asp	Asn	Gly	Gly	Cys	Lys	Gln
2180						2185					2190			
Leu	Cys	Leu	Tyr	Arg	Gly	Asn	Ser	Arg	Arg	Thr	Cys	Ala	Cys	Ala
2195						2200					2205			
His	Gly	Tyr	Leu	Ala	Glu	Asp	Gly	Val	Thr	Cys	Leu	Arg	His	Glu
2210						2215					2220			
Gly	Tyr	Leu	Leu	Tyr	Ser	Gly	Arg	Thr	Ile	Leu	Lys	Ser	Ile	His
2225						2230					2235			
Leu	Ser	Asp	Glu	Thr	Asn	Leu	Asn	Ser	Pro	Ile	Arg	Pro	Tyr	Glu
2240						2245					2250			
Asn	Pro	Arg	Tyr	Phe	Lys	Asn	Val	Ile	Ala	Leu	Ala	Phe	Asp	Tyr
2255						2260					2265			
Asn	Gln	Arg	Arg	Lys	Gly	Thr	Asn	Arg	Ile	Phe	Tyr	Ser	Asp	Ala
2270						2275					2280			
His	Phe	Gly	Asn	Ile	Gln	Leu	Ile	Lys	Asp	Asn	Trp	Glu	Asp	Arg
2285						2290					2295			

Gln Val	Ile Val	Glu Asn	Val Gly	Ser Val	Glu Gly	Leu Ala	Tyr
2300			2305		2310		
His Arg	Ala Trp	Asp Thr	Leu Tyr	Trp Thr	Ser Ser	Thr Thr	Ser
2315			2320		2325		
Ser Ile	Thr Arg	His Thr	Val Asp	Gln Thr	Arg Pro	Gly Ala	Phe
2330			2335		2340		
Asp Arg	Glu Ala	Val Ile	Thr Met	Ser Glu	Asp Asp	His Pro	His
2345			2350		2355		
Val Leu	Ala Leu	Asp Glu	Cys Gln	Asn Leu	Met Phe	Trp Thr	Asn
2360			2365		2370		
Trp Asn	Glu Gln	His Pro	Ser Ile	Met Arg	Ser Thr	Leu Thr	Gly
2375			2380		2385		
Lys Asn	Ala Gln	Val Val	Val Ser	Thr Asp	Ile Leu	Thr Pro	Asn
2390			2395		2400		
Gly Leu	Thr Ile	Asp Tyr	Arg Ala	Glu Lys	Leu Tyr	Phe Ser	Asp
2405			2410		2415		
Gly Ser	Leu Gly	Lys Ile	Glu Arg	Cys Glu	Tyr Asp	Gly Ser	Gln
2420			2425		2430		
Arg His	Val Ile	Val Lys	Ser Gly	Pro Gly	Thr Phe	Leu Ser	Leu
2435			2440		2445		
Ala Val	Tyr Asp	Asn Tyr	Ile Phe	Trp Ser	Asp Trp	Gly Arg	Arg
2450			2455		2460		
Ala Ile	Leu Arg	Ser Asn	Lys Tyr	Thr Gly	Gly Asp	Thr Lys	Ile
2465			2470		2475		
Leu Arg	Ser Asp	Ile Pro	His Gln	Pro Met	Gly Ile	Ile Ala	Val
2480			2485		2490		
Ala Asn	Asp Thr	Asn Ser	Cys Glu	Leu Ser	Pro Cys	Ala Leu	Leu
2495			2500		2505		
Asn Gly	Gly Cys	His Asp	Leu Cys	Leu Leu	Thr Pro	Asn Gly	Arg
2510			2515		2520		
Val Asn	Cys Ser	Cys Arg	Gly Asp	Arg Ile	Leu Leu	Glu Asp	Asn
2525			2530		2535		

Arg 2540	Cys	Val	Thr	Lys	Asn	Ser 2545	Ser	Cys	Asn	Ala	Tyr 2550	Ser	Glu	Phe
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Gly 2570	Ile	Pro	His	Cys	Lys	Asp 2575	Lys	Ser	Asp	Glu	Lys 2580	Leu	Leu	Tyr
Cys 2585	Glu	Asn	Arg	Ser	Cys	Arg 2590	Arg	Gly	Phe	Lys	Pro 2595	Cys	Tyr	Asn
Arg 2600	Arg	Cys	Ile	Pro	His	Gly 2605	Lys	Leu	Cys	Asp	Gly 2610	Glu	Asn	Asp
Cys 2615	Gly	Asp	Asn	Ser	Asp	Glu 2620	Leu	Asp	Cys	Lys	Val 2625	Ser	Thr	Cys
Ala 2630	Thr	Val	Glu	Phe	Arg	Cys 2635	Ala	Asp	Gly	Thr	Cys 2640	Ile	Pro	Arg
Ser 2645	Ala	Arg	Cys	Asn	Gln	Asn 2650	Ile	Asp	Cys	Ala	Asp 2655	Ala	Ser	Asp
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Cys 2720	Glu	Glu	Asn	Tyr	Phe	Ser 2725	Cys	Pro	Ser	Gly	Arg 2730	Cys	Ile	Leu
Asn 2735	Thr	Trp	Ile	Cys	Asp	Gly 2740	Gln	Lys	Asp	Cys	Glu 2745	Asp	Gly	Arg
Asp 2750	Glu	Phe	His	Cys	Asp	Ser 2755	Ser	Cys	Ser	Trp	Asn 2760	Gln	Phe	Ala
Cys 2765	Ser	Ala	Gln	Lys	Cys	Ile 2770	Ser	Lys	His	Trp	Ile 2775	Cys	Asp	Gly

Glu Asp	Asp Cys Gly Asp Gly	Leu Asp Glu Ser Asp	Ser Ile Cys
2780	2785	2790	
Gly Ala	Ile Thr Cys Ala Ala	Asp Met Phe Ser Cys	Gln Gly Ser
2795	2800	2805	
Arg Ala	Cys Val Pro Arg His	Trp Leu Cys Asp Gly	Glu Arg Asp
2810	2815	2820	
Cys Pro	Asp Gly Ser Asp Glu	Leu Ser Thr Ala Gly	Cys Ala Pro
2825	2830	2835	
Asn Asn	Thr Cys Asp Glu Asn	Ala Phe Met Cys His	Asn Lys Val
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Cys Ile	Pro Lys Gln Phe Val	Cys Asp His Asp Asp	Asp Cys Gly
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Asp Gly	Ser Asp Glu Ser Pro	Gln Cys Gly Tyr Arg	Gln Cys Gly
2870	2875	2880	
Thr Glu	Glu Phe Ser Cys Ala	Asp Gly Arg Cys Leu	Leu Asn Thr
2885	2890	2895	
Gln Trp	Gln Cys Asp Gly Asp	Phe Asp Cys Pro Asp	His Ser Asp
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Glu Ala	Pro Leu Asn Pro Lys	Cys Lys Ser Ala Glu	Gln Ser Cys
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Asn Ser	Ser Phe Phe Met Cys	Lys Asn Gly Arg Cys	Ile Pro Ser
2930	2935	2940	
Gly Gly	Leu Cys Asp Asn Lys	Asp Asp Cys Gly Asp	Gly Ser Asp
2945	2950	2955	
Glu Arg	Asn Cys His Ile Asn	Glu Cys Leu Ser Lys	Lys Val Ser
2960	2965	2970	
Gly Cys	Ser Gln Asp Cys Gln	Asp Leu Pro Val Ser	Tyr Lys Cys
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Lys Cys	Trp Pro Gly Phe Gln	Leu Lys Asp Asp Gly	Lys Thr Cys
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Val Asp	Ile Asp Glu Cys Ser	Ser Gly Phe Pro Cys	Ser Gln Gln
3005	3010	3015	

His Lys Val Pro Asn Gln Asp Ile Pro Gly Val Ile Ala Leu Thr
3245 3250 3255

Leu Phe Glu Asp Tyr Ile Tyr Trp Thr Asp Gly Lys Thr Lys Ser
3260 3265 3270

Leu Ser Arg Ala His Lys Thr Ser Gly Ala Asp Arg Leu Ser Leu
3275 3280 3285

Ile Tyr Ser Trp His Ala Ile Thr Asp Ile Gln Val Tyr His Ser
3290 3295 3300

Tyr Arg Gln Pro Asp Val Ser Lys His Leu Cys Met Ile Asn Asn
3305 3310 3315

Gly Gly Cys Ser His Leu Cys Leu Leu Ala Pro Gly Lys Thr His
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Thr Cys Ala Cys Pro Thr Asn Phe Tyr Leu Ala Ala Asp Asn Arg
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Thr Cys Leu Ser Asn Cys Thr Ala Ser Gln Phe Arg Cys Lys Thr
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Pro Ala Phe Ile Cys Asp Gly Glu Asn Asp Cys Gly Asp Asn Ser
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Asp Glu Leu Asn Cys Asp Thr His Val Cys Leu Ser Gly Gln Phe
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Lys Cys Thr Lys Asn Gln Lys Cys Ile Pro Val Asn Leu Arg Cys
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Asn Gly Gln Asp Asp Cys Gly Asp Glu Glu Asp Glu Arg Asp Cys
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Pro Glu Asn Ser Cys Ser Pro Asp Tyr Phe Gln Cys Lys Thr Thr
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Lys His Cys Ile Ser Lys Leu Trp Val Cys Asp Glu Asp Pro Asp
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Cys Ala Asp Ala Ser Asp Glu Ala Asn Cys Asp Lys Lys Thr Cys
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Gly Pro His Glu Phe Gln Cys Lys Asn Asn Asn Cys Ile Pro Asp
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His Trp Arg Cys Asp Ser Gln Asn Asp Cys Ser Asp Asn Ser Asp
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Glu Glu Asn Cys Lys Pro Gln Thr Cys Thr Leu Lys Asp Phe Leu
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Ser Cys Ser Lys Asp Gln Phe Arg Cys Ser Asn Gly Gln Cys Ile
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Pro Ala Lys Trp Lys Cys Asp Gly His Glu Asp Cys Lys Tyr Gly
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Lys Leu His Phe Trp Val Cys Asp Gly Glu Asp Asp Cys Gly Asp
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Asn Ser Asp Glu Ala Pro Asp Met Cys Val Lys Phe Leu Cys Pro
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Ser Thr Arg Pro His Arg Cys Arg Asn Asn Arg Ile Cys Leu Gln
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Ser Glu Gln Met Cys Asn Gly Ile Asp Glu Cys Gly Asp Asn Ser
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3785 3790 3795

Cys Lys Lys Asp Glu Phe Ala Cys Ser Asn Lys Lys Cys Ile Pro
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Met Asp Leu Gln Cys Asp Arg Leu Asp Asp Cys Gly Asp Gly Ser
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Asp Glu Gln Gly Cys Arg Ile Ala Pro Thr Glu Tyr Thr Cys Glu
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Lys Thr Ser Val Phe Cys Arg Cys Lys Pro Gly Phe Gln Arg Asn
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Met Lys Asn Arg Gln Cys Glu Asp Leu Asn Glu Cys Leu Val Phe
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Gly Thr Cys Ser His Gln Cys Ile Asn Val Glu Gly Ser Tyr Lys
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Ala Glu Gly Ser Glu Asp Gln Val Leu Tyr Ile Ala Asn Asp Thr
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Gln Gln Ile Ser His Ile Glu His Asn Ser Arg Ile Thr Gly Met
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Asp Val Tyr Tyr Gln Arg Asp Met Ile Ile Trp Ser Thr Gln Phe
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Asn Pro Gly Gly Ile Phe Tyr Lys Arg Ile His Gly Arg Glu Lys
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Arg Gln Ala Asn Ser Gly Leu Ile Cys Pro Glu Phe Lys Arg Pro
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Arg Asp Ile Ala Val Asp Trp Val Ala Gly Asn Ile Tyr Trp Thr
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Asp His Ser Arg Met His Trp Phe Ser Tyr Tyr Thr Thr His Trp
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Thr Ser Leu Arg Tyr Ser Ile Asn Val Gly Gln Leu Asn Gly Pro
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Asn Cys Thr Arg Leu Leu Thr Asn Met Ala Gly Glu Pro Tyr Ala
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Ile Ala Val Asn Pro Lys Arg Gly Met Met Tyr Trp Thr Val Val
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Gly Asp His Ser His Ile Glu Glu Ala Ala Met Asp Gly Thr Leu
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Arg Arg Ile Leu Val Gln Lys Asn Leu Gln Arg Pro Thr Gly Leu
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Ala Val Asp Tyr Phe Ser Glu Arg Ile Tyr Trp Ala Asp Phe Glu
4115 4120 4125

Leu Ser Ile Ile Gly Ser Val Leu Tyr Asp Gly Ser Asn Ser Val
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Val Ser Val Ser Ser Lys Gln Gly Leu Leu His Pro His Arg Ile
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Asp Ile Phe Glu Asp Tyr Ile Tyr Gly Ala Gly Pro Lys Asn Gly
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Val Phe Arg Val Gln Lys Phe Gly His Gly Ser Val Glu Tyr Leu
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Ala Leu Asn Ile Asp Lys Thr Lys Gly Val Leu Ile Ser His Arg
4190 4195 4200

Tyr Lys Gln Leu Asp Leu Pro Asn Pro Cys Leu Asp Leu Ala Cys
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"TETRAPEPTIDE"

Glu Phe Leu Cys Leu Leu Asn Pro Ser Gly Ala Thr Cys Val Cys
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Pro Glu Gly Lys Tyr Leu Ile Asn Gly Thr Cys Asn Asp Asp Ser
4235 4240 4245

Leu Leu Asp Asp Ser Cys Lys Leu Thr Cys Glu Asn Gly Gly Arg
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Cys Ile Leu Asn Glu Lys Gly Asp Leu Arg Cys His Cys Trp Pro
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Ser Tyr Ser Gly Glu Arg Cys Glu Val Asn His Cys Ser Asn Tyr
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Cys Gln Asn Gly Gly Thr Cys Val Pro Ser Val Leu Gly Arg Pro
4295 4300 4305

Thr Cys Ser Cys Ala Leu Gly Phe Thr Gly Pro Asn Cys Gly Lys
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Gly Asp Arg Cys Gln Tyr Tyr Val Cys His His Tyr Cys Val Asn
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Ser Glu Ser Cys Thr Ile Gly Asp Asp Gly Ser Leu Glu Cys Val
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Cys Pro Thr Arg Tyr Glu Gly Pro Lys Cys Glu Val Asp Lys Cys
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Val Arg Cys His Gly Gly His Cys Ile Ile Asn Lys Asp Ser Glu
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Gln Leu Cys Asp Gly Tyr Cys Tyr Asn Gly Gly Thr Cys Gln Leu
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Ser Gly Thr Gln Cys Glu Arg Pro Ala Pro Lys Ser Ser Lys Ser
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Asp His Ile Ser Thr Arg Ser Ile Ala Ile Ile Val Pro Leu Val
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Leu Leu Val Thr Leu Ile Thr Thr Leu Val Ile Gly Leu Val Leu
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Cys Lys Arg Lys Arg Arg Thr Lys Thr Ile Arg Arg Gln Pro Ile
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Ile Asn Gly Gly Ile Asn Val Glu Ile Gly Asn Pro Ser Tyr Asn
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Met Tyr Glu Val Asp His Asp His Asn Asp Gly Gly Leu Leu Asp
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Pro Gly Phe Met Ile Asp Pro Thr Lys Ala Arg Tyr Ile Gly Gly
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Gly Pro Ser Ala Phe Lys Leu Pro His Thr Ala Pro Pro Ile Tyr
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Tyr Ser Asn Pro Val Tyr Ala Lys Leu Tyr Met Asp Gly Gln Asn
4595 4600 4605

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gcgagtgacc gtgagcacac agttccgtag cggggcccat acgagactcg acgcgcgcgc 1680
accacgaggt cccgagggag gacactcgac ggacacgagt gacgggaaat gtgcatctac 1740
actagcgcgc gacagctaga gcgatgacgg cgaggacgtc tcgcagccta ccagcaacgc 1800
gaagacgtgc ctcccggcgt cgtatggatt aacaagctcc aagtaggggtg tacaacgccg 1860
cagcatgaac tcccagg 1877

<210> 41
<211> 400
<212> PRT
<213> Homo sapiens

<400> 41

Met Asn Lys Lys Lys Pro Leu His Ser Lys Ser Ser Arg Ile His Gln
1 5 10 15
Gln Ile Ile Val Gln Leu Asp Ser Leu Pro Pro Pro Val Phe Ser Glu
20 25 30
Gln Val Met Ala Ser Met Ala Ala Val Leu Thr Trp Ala Leu Ala Leu
35 40 45
Leu Ser Ala Phe Ser Ala Thr Gln Ala Arg Lys Gly Phe Trp Asp Tyr
50 55 60
Phe Ser Gln Thr Ser Gly Asp Lys Gly Arg Val Glu Gln Ile His Gln

65	70					75					80				
Gln Lys Met	Ala	Arg	Glu	Pro	Ala	Thr	Leu	Lys	Asp	Ser	Leu	Glu	Gln		
		85					90					95			
Asp Leu Asn	Asn	Met	Asn	Lys	Phe	Leu	Glu	Lys	Leu	Arg	Pro	Leu	Ser		
	100					105					110				
Gly Ser Glu	Ala	Pro	Arg	Leu	Pro	Gln	Asp	Pro	Val	Gly	Met	Arg	Arg		
	115				120					125					
Gln Leu Gln	Glu	Glu	Leu	Glu	Glu	Val	Lys	Ala	Arg	Leu	Gln	Pro	Tyr		
	130				135				140						
Met Ala Glu	Ala	His	Glu	Leu	Val	Gly	Trp	Asn	Leu	Glu	Gly	Leu	Arg		
	145		150					155					160		
Gln Gln Leu	Lys	Pro	Tyr	Thr	Met	Asp	Leu	Met	Glu	Gln	Val	Ala	Leu		
		165					170					175			
Arg Val Gln	Glu	Leu	Gln	Glu	Gln	Leu	Arg	Val	Val	Gly	Glu	Asp	Thr		
	180					185					190				
Lys Ala Gln	Leu	Leu	Gly	Gly	Val	Asp	Glu	Ala	Trp	Ala	Leu	Leu	Gln		
	195				200					205					
Gly Leu Gln	Ser	Arg	Val	Val	His	His	Thr	Gly	Arg	Phe	Lys	Glu	Leu		
	210			215					220						
Phe His Pro	Tyr	Ala	Glu	Ser	Leu	Val	Ser	Gly	Ile	Gly	Arg	His	Val		
	225		230					235					240		
Gln Glu Leu	His	Arg	Ser	Val	Ala	Pro	His	Ala	Pro	Ala	Ser	Pro	Ala		
		245					250					255			
Arg Leu Ser	Arg	Cys	Val	Gln	Val	Leu	Ser	Arg	Lys	Leu	Thr	Leu	Lys		
	260					265					270				
Ala Lys Ala	Leu	His	Ala	Arg	Ile	Gln	Gln	Asn	Leu	Asp	Gln	Leu	Arg		
	275				280					285					
Glu Glu Leu	Ser	Arg	Ala	Phe	Ala	Gly	Thr	Gly	Thr	Glu	Glu	Gly	Ala		
	290			295					300						
Gly Pro Asp	Pro	Gln	Met	Leu	Ser	Glu	Glu	Val	Arg	Gln	Arg	Leu	Gln		
	305		310					315					320		
Ala Phe Arg	Gln	Asp	Thr	Tyr	Leu	Gln	Ile	Ala	Ala	Phe	Thr	Arg	Ala		
		325					330					335			
Ile Asp Gln	Glu	Thr	Glu	Glu	Val	Gln	Gln	Gln	Leu	Ala	Pro	Pro	Pro		
	340					345					350				
Pro Gly His	Ser	Ala	Phe	Ala	Pro	Glu	Phe	Gln	Gln	Thr	Asp	Ser	Gly		
	355				360					365					
Lys Val Leu	Ser	Lys	Leu	Gln	Ala	Arg	Leu	Asp	Asp	Leu	Trp	Glu	Asp		
	370			375					380						
Ile Thr His	Ser	Leu	His	Asp	Gln	Gly	His	Ser	His	Leu	Gly	Asp	Pro		
	385		390					395					400		

<211> 2128
<212> DNA
<213> Homo sapiens

<400> 42
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acaagcgtcg ggggtgcagca aaaccatcca ggctggacag tggctggaca gttccaagaa 180
aagaaacgct tcaactgaaga agtcattgaa tacttccaga agaaagttag ccagtgcat 240
ctgaaaatcc tgctgactag cgatgaagcc tggaagagat ttgtgcgtgt ggctgaattg 300
cccaggggaag aggcagatgc tctctatgaa gctctgaaga atcttacacc atatgtgact 360
attgaggaca aagacatgca gcaaaaagaa cagcagttta gggagtgggt tttgaaagag 420
tttctcaaaa tcagatggaa gattcaggag tccatagaaa ggcttcgtgt cattgcaaat 480
gagattgaaa aggtccacag aggctgcgtc atcgccaatg tgggtgtctgg ctccactggc 540
atcctgtctg tcattggcgt tatgttggca ccatttacag cagggtgag cctgagcatt 600
actgcagctg gggtagggct gggaaatagca tctgccacgg ctgggatcgc ctccagcatc 660
gtggagaaca catacacaag gtcagcagaa ctcacagcca gcaggctgac tgcaaccagc 720
actgaccaat tggaggcatt aaggacatt ctgcatgaca tcacaccaa tgtgctttcc 780
tttgacttg attttgacga agccacaaaa atgattgcca atgatgtcca tacactcagg 840
agatctaaag ccaactgttg acgcccttg attgcttggc gatatgtacc tataaatgtt 900
gttgagacac tgagaacacg tggggccccc acccgatag tgagaaaagt agcccggaac 960
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tcaactggact tgcacaaggg ggcaaaatcc gagtctgctg agtcgctgag gcagtgggct 1080
caggagctgg aggagaatct caatgagctc acccatatcc atcagagtct aaaagcaggc 1140
taggccaat tgttgcgga agtcaggac cccaaacgga gggactggct gaagccatgg 1200
cagaagaacg tggattgtga agatttcag gacatttatt agttcccaa attaatactt 1260
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ggacacttat cacttcccca atcaatacc ttgtgatttc ttatgcctgt ctttacttta 1380
atctccta at cctgtcagct gaggaggatg tatgtcacct caggaccatg tgataattgc 1440
gttaactgca caaattgtag agcatgtgtg tttgaacaat atgaaatctg ggcaccttga 1500
aaaaagaaca ggataacagc aattgttcag ggaataagag agataacctt aaactctgac 1560
caacagtgag ccgggtggaa cagagtcata tttctcttct ttcaaaagca aatgggagaa 1620
atctcgtga attctttttc tcagcaagga acatccctga gaaagagaat gcacccctga 1680
gggtgggtct ataaatggcc tccttgggtg tggccatctt ctatggctga gactgtaggg 1740

atgaaataaaa cccagtcctc ccatagtgtc cccaggctta ttaggaagag gaaattcccg 1800
cctaataaaat tttggtcaga cgggtgtctc tcaaaaccct gtctcctgat aagatgttat 1860
caatgacaat ggtgcctgaa acctcattag caattttaat ttctccccgg tcctgtggtc 1920
ctgtgatctc acctgcctc cacttgctt gtgatattct attaccttgt gaagtaggtg 1980
atctttgtga cccacaccct attcatacac tccctcccct tttgaaagtc cctaataaaa 2040
acttgctggt tttgcagctt gtgaggcatc acggaaccta ctgatgtgtg atgtctcccc 2100
tggacaccta gctttaaaat ttcaaaaa 2128

<210> 43
<211> 348
<212> PRT
<213> Homo sapiens

<400> 43

Met Gly Ser Trp Val Gln Leu Ile Thr Ser Val Gly Val Gln Gln Asn
1 5 10 15
His Pro Gly Trp Thr Val Ala Gly Gln Phe Gln Glu Lys Lys Arg Phe
20 25 30
Thr Glu Glu Val Ile Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His
35 40 45
Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg
50 55 60
Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu
65 70 75 80
Lys Asn Leu Thr Pro Tyr Val Thr Ile Glu Asp Lys Asp Met Gln Gln
85 90 95
Lys Glu Gln Gln Phe Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile
100 105 110
Arg Trp Lys Ile Gln Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn
115 120 125
Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser
130 135 140
Gly Ser Thr Gly Ile Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe
145 150 155 160
Thr Ala Gly Leu Ser Leu Ser Ile Thr Ala Ala Gly Val Gly Leu Gly
165 170 175
Ile Ala Ser Ala Thr Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr
180 185 190
Tyr Thr Arg Ser Ala Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser
195 200 205
Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu His Asp Ile Thr Pro
210 215 220

Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile
 225 230 235 240

Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg
 245 250 255

Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu
 260 265 270

Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn
 275 280 285

Leu Gly Lys Ala Thr Ser Gly Val Leu Val Val Leu Asp Val Val Asn
 290 295 300

Leu Val Gln Asp Ser Leu Asp Leu His Lys Gly Ala Lys Ser Glu Ser
 305 310 315 320

Ala Glu Ser Leu Arg Gln Trp Ala Gln Glu Leu Glu Glu Asn Leu Asn
 325 330 335

Glu Leu Thr His Ile His Gln Ser Leu Lys Ala Gly
 340 345

<210> 44
 <211> 988
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> n = a or c or g or t

<220>
 <221> CDS
 <222> (129)..(971)

<400> 44
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agctcacagt agccccggcg cccagggcaa tccgaccaca tttcactctc accgctgtag 120

gaatccag atg cag gcc aag tac agc agc acg agg gac atg ctg gat gat 170
 Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp Met Leu Asp Asp
 1 5 10

gat ggg gac acc acc atg agc ctg cat tct caa gcc tct gcc aca act 218
 Asp Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr
 15 20 25 30

cgg cat cca gag ccc cgg cgc aca gtt ttt cag tac tac cag ctc tcc 266
 Arg His Pro Glu Pro Arg Arg Thr Val Phe Gln Tyr Tyr Gln Leu Ser
 35 40 45

aat act ggt caa gac acc att tct caa atg gaa gaa aga tta gga aat 314
 Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn
 50 55 60

acg tcc caa gag ttg caa tct ctt caa gtc cag aat ata aag ctt gca 362
 Thr Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala
 65 70 75

gga agt ctg cag cat gtg gct gaa aaa ctc tgt cgt gag ctg tat aac	410
Gly Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn	
80 85 90	
aaa gct gga ggc tat aca aga aac atg gtg cca gca tct gct tct tct	458
Lys Ala Gly Gly Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser	
95 100 105 110	
gag agc ctc agg cag ctt cca cac atg ggg gaa agt gca gca gca cac	506
Glu Ser Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His	
115 120 125	
agg tgc agc cct tgt aca gaa caa tgg aaa tgg cat gga gac aat tgc	554
Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys	
130 135 140	
tac cag ttc tat aaa gac agc aaa agt tgg gag gac tgt aaa tat ttc	602
Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe	
145 150 155	
tgc ctt agt gaa aac tct acc atg ctg aag ata aac aaa caa gaa gac	650
Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp	
160 165 170	
ctg gaa ttt gcc gcg tct cag agc tac tct gag ttt ttc tac tct tat	698
Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr	
175 180 185 190	
tgg aca ggg ctt ttg cgc cct gac agt ggc aag gcc tgg ctg tgg atg	746
Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu Trp Met	
195 200 205	
gat gga acc cct ttc act tct gaa ctg ttc cat att ata ata gat gtc	794
Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val	
210 215 220	
acc agc cca aga agc aga gac tgt gtg gcc atc ctt aat ggg atg atc	842
Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile	
225 230 235	
ttc tca aag gac tgc aaa gaa ttg aag cgt tgt gtc tgt gag aga agg	890
Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg	
240 245 250	
gca gga atg gtg aag cca gag agc ctc cat gtc ccc cct gaa aca tta	938
Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu	
255 260 265 270	
ggc gaa ggt gac atg cat cat cat cat cat cat tagcctaggt tctagac	988
Gly Glu Gly Asp Met His His His His His His	
275 280	

<210> 45

<211> 281

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<223> n = a or c or g or t

<400> 45

Met	Gln	Ala	Lys	Tyr	Ser	Ser	Thr	Arg	Asp	Met	Leu	Asp	Asp	Asp	Gly	1	5	10	15
Asp	Thr	Thr	Met	Ser	Leu	His	Ser	Gln	Ala	Ser	Ala	Thr	Thr	Arg	His	20	25	30	
Pro	Glu	Pro	Arg	Arg	Thr	Val	Phe	Gln	Tyr	Tyr	Gln	Leu	Ser	Asn	Thr	35	40	45	
Gly	Gln	Asp	Thr	Ile	Ser	Gln	Met	Glu	Glu	Arg	Leu	Gly	Asn	Thr	Ser	50	55	60	
Gln	Glu	Leu	Gln	Ser	Leu	Gln	Val	Gln	Asn	Ile	Lys	Leu	Ala	Gly	Ser	65	70	75	
Leu	Gln	His	Val	Ala	Glu	Lys	Leu	Cys	Arg	Glu	Leu	Tyr	Asn	Lys	Ala	85	90	95	
Gly	Gly	Tyr	Thr	Arg	Asn	Met	Val	Pro	Ala	Ser	Ala	Ser	Ser	Glu	Ser	100	105	110	
Leu	Arg	Gln	Leu	Pro	His	Met	Gly	Glu	Ser	Ala	Ala	Ala	His	Arg	Cys	115	120	125	
Ser	Pro	Cys	Thr	Glu	Gln	Trp	Lys	Trp	His	Gly	Asp	Asn	Cys	Tyr	Gln	130	135	140	
Phe	Tyr	Lys	Asp	Ser	Lys	Ser	Trp	Glu	Asp	Cys	Lys	Tyr	Phe	Cys	Leu	145	150	155	
Ser	Glu	Asn	Ser	Thr	Met	Leu	Lys	Ile	Asn	Lys	Gln	Glu	Asp	Leu	Glu	165	170	175	
Phe	Ala	Ala	Ser	Gln	Ser	Tyr	Ser	Glu	Phe	Phe	Tyr	Ser	Tyr	Trp	Thr	180	185	190	
Gly	Leu	Leu	Arg	Pro	Asp	Ser	Gly	Lys	Ala	Trp	Leu	Trp	Met	Asp	Gly	195	200	205	
Thr	Pro	Phe	Thr	Ser	Glu	Leu	Phe	His	Ile	Ile	Ile	Asp	Val	Thr	Ser	210	215	220	
Pro	Arg	Ser	Arg	Asp	Cys	Val	Ala	Ile	Leu	Asn	Gly	Met	Ile	Phe	Ser	225	230	235	
Lys	Asp	Cys	Lys	Glu	Leu	Lys	Arg	Cys	Val	Cys	Glu	Arg	Arg	Ala	Gly	245	250	255	

[illegible]